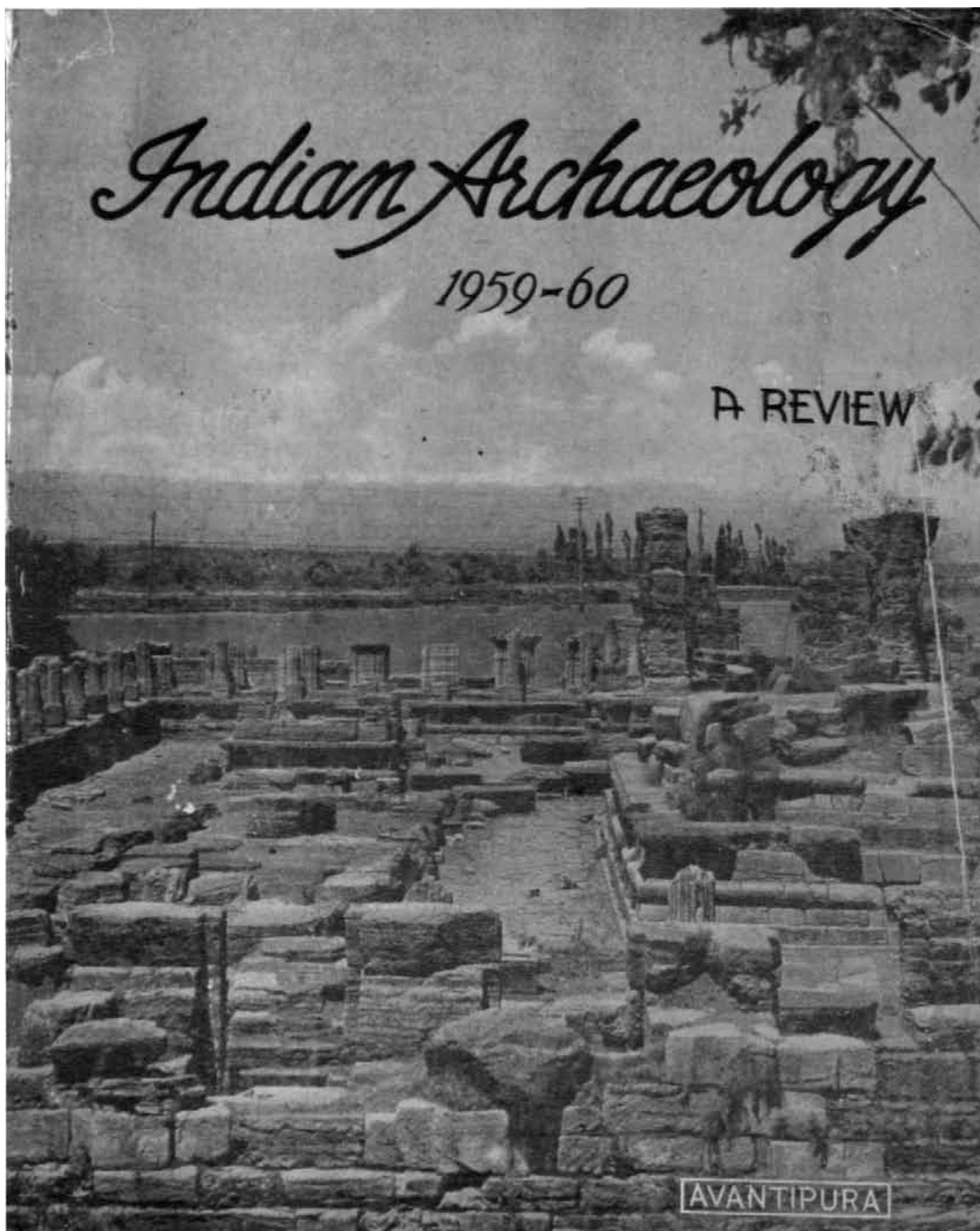

Indian Archaeology
1959-60
A REVIEW
AVANTIPURA

INDIAN ARCHAEOLOGY 1959-60
—A REVIEW

EDITED **BY**

A. GHOSH

Director General of Archaeology in India



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ACKNOWLEDGEMENTS

The present number of *Indian Archaeology—A Review* incorporates, as did the previous numbers, all the available information on the varied activities in the field of archaeology in the country during the preceding official year. My grateful thanks are due to all—heads of the archaeological organizations in States and Universities, of Museums and of Research Institutes, my colleagues in the Union Department of Archaeology and a few individuals—who supplied the material embodied in the following pages. I also thank those colleagues of mine who helped me in editing the *Review* and in seeing it through the press.

Considerations of space and others factors do not always permit the printing of the reports in the form in which they are received. All care has been taken to see that the essential facts and views contained in these reports are not affected in the process of abridging, and in some cases rewriting, them; this ensures that the responsibility for the facts and their interpretation remains with those who supplied them. Nevertheless, editorial slips may have crept in here and there in spite of my endeavours to avoid them. For such slips I express my regret.

New Delhi :
The 11th October 1960 A. GHOSH

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INDIAN ARCHAEOLOGY 1959-60

—A REVIEW

I. GENERAL

AN OUTSTANDING EVENT OF THE YEAR WAS THE INAUGURATION, UNDER THE auspices of the Department of Archaeology, Government of India, of a School of Archaeology, which, in fact, marked the fulfilment of a long-felt need. For, though in the past the Department had been imparting training to young graduates and, sometimes, nominees of other archaeological organizations, the training was sporadic and incomplete; it could not in any way be regarded as a systematic attempt at producing a fully-equipped personnel.

The highlight of the course of the School is an intensive practical training in excavation and preservation of monuments. To this is added a practical training in surveying, drawing, photography, chemical preservation of monuments and antiquities and museum-methods. On the theoretical side, besides traditional subjects like art, architecture, palaeography and numismatics, are taught, with considerable emphasis, prehistory and protohistoric and early historical archaeology, supplemented by elementary geology, anthropology and environmental archaeology. Also included are such subjects—of doubtless importance to the professional archaeologist—as publication, including block-making and printing, and antiquarian laws. The course is rounded up by a visit to outstanding monuments and museums.

The duration of each course, originally fifteen months, has now been extended to twenty, i.e. from October in one year to May in the third. At the end of the course is held an examination consisting of written papers, practical tests, essay and *viva voce,* and successful candidates are awarded a Diploma.

The School has a well-equipped library of its own; besides, the students have full access to the rich Central Archaeological Library. Attached to the School is a museum, the special feature of which is a vast collection of pottery and other antiquities from important explored and excavated sites in the country. Besides, there are on display several charts and photographs illustrating such subjects as art, architecture and palaeography.

The School functions under a Director who is a senior officer of the Department. Other senior officers of the Department and distinguished outsiders also give lectures on subjects of their specialization.

For the first session the School has on its roll ten students, of whom one is a nominee of the Government of Burma. For the second session, scheduled to commence in October 1960, a seat has been reserved for a nominee of His Majesty's Government of Nepal. Students not receiving emoluments from any source are given stipends.

Another event of the year worth mentioning was the taking over of the important monuments in Jammu and Kashmir by the Department. A new Circle, called the Frontier Circle, has been created for the purpose.

Some time back, the Department had set up a small organization for the preparation of an authentic archaeological atlas of India; and it is to be noted with satisfaction that the project has made sufficient progress in spite of the serious difficulties in the way.

A comparison of the map showing the regions explored and sites excavated during the year (fig. 1, p. 4) with the corresponding map in last year's *Review* will not show any enor-mous variation; in other words, even though the activities in the directions of explorations and excavations have been as brisk as in the preceding year, work has been concentrated on a few sites already taken up previously for obtaining a more detailed picture of the concerned cultures, instead of being spread over a large number of sites in search of mere sequence. Thus, further work was carried out at Nagarjunakonda in Andhra Pradesh, Sonpur and Vaisali in Bihar, Lothal in Gujarat, Nevasa in Maharashtra, T. Narasipur in Mysore, Ratnagiri in Orissa, Kausambi in Uttar Pradesh and Chandraketugarh in West Bengal.

At Nagarjunakonda, besides further evidence on the Early and Middle Stone Age industries, much valuable knowledge was gathered on the neolithic, megalithic and early historical cultures. Particularly noteworthy was the regular occurrence of skeletal remains, together with the concomitant grave-furniture, in pit-circles, which were once thought to be mere 'macerating pits'. The excavation at Sonpur once more confirmed the priority of the black-and-red ware over the Northern Black Polished Ware. Two *stupas* adjoining the pillar of Asoka near Vaisali were excavated; one of them had interesting pre-Christian relics. The work at the Harappan site of Lothal was brought to conclusion by the clearance of a large part of the town-plan and identification of the inlet-channel of the dockyard. Work in the cemetery-area showed that the double-burials were confined to the late Phase. The excavation at Nevasa laid bare late medieval structures and revealed details not only of the way of the life of the chalcolithic people but also of their burial-customs. Of particular interest was the discovery here of the earliest specimen of silk in the country. The work at T. Narasipur further established that in south India there had existed a true neolithic culture with polished stone axes and burnished grey ware prior to the intrusion of the chalcolithic black-on-red ware from the northern Deccan. At Ratnagiri were obtained further details of Monasteries 1 and 2 and the earlier structures on the site; a small brick temple of the Orissan *rekha* order was also exposed. At Kausambi, the inner side of the fortification, the exterior of which had already been excavated, was taken up with the idea of correlating the defences with the habi-tational strata. The work of Chandraketugarh brought to light further details of the colossal temple partially excavated previously.

The new sites taken up during the year included Gilund in Rajasthan, Broach and Devnimori in Gujarat, Awra and Manoti in Madhya Pradesh and Bahurupa and Sawalda in Maharashtra. The work at Gilund, besides clearly demonstrating the priority of the white-painted black-and-red ware over the chalcolithic black-on-red ware of central India, partially brought to light the remains of a complicated structure consisting of a series of parallel and criss-cross walls of mud-brick, the intermediary space being stuffed with sand. The excavation at Broach—Bharukachchha of Indian literature—revealed that the site went back to about the middle of the first millennium B.C. . At Devnimori were unearthed the remains of a Buddhist establishment including a massive *stupa*, the images on which showed Gandhara influence The excavations at Awra, Manoti, Bahurupa and Sawalda revealed facets of the chalcolithic cultures of central India and the northern Deccan. The work at these sites-Devnimori Awra Manoti, Bahurupa and Sawalda-was the outcome of the threat from irrigation-projects that are shortly to drown the regions in which they are located.

So also were the explorations in the Chambal valley in Madhya Pradesh, where tools of Series I and II and chalcolithic and historical remains were encountered, and in the Kasai (Kangsabati) valley in West Bengal, which revealed human remains right from the

palaeolithic down to historical times. Other river-valleys yielded tools of Series I and II and, in one case, fossil-remains.

Epigraphical research continued to add to our knowledge of ancient and medieval history of the country. Thus, a fragmentary inscription on a stone pillar, possibly the remnant of a new edict of Asoka, found at Amaravati in Andhra Pradesh, suggests that the celebrated Buddhist *stupa* of the place might well go back to the third century B.C. The inscriptions from Nagarjunakonda are important for the history and chronology of the Ikshvakus as also for the date of the Pallava conquest of Andhrapatha. An inscription, found at Malai-vadikkurichchi in District Tiruvenveli and dated in the seventeenth year of the reign of Maran Chendan, is the earliest amongst the Pandya inscriptions known hitherto. A seventh-century inscription from Kabul records the installation of an image of Maha-Vinayaka by a Shahi king.

Amongst the Arabic and Persian inscriptions are some thirteenth-century epitaphs, mostly from Cambay in Gujarat, which provide valuable data for a study of the relations of India with west Asia. Particularly noteworthy is an inscription from Cambay which corroborates the story narrated by an early thirteenth-century Muslim author about the high standard of justice displayed by the famous Chaulukyan ruler of Gujarat, Siddharaja Jaya-simha (1094-1143), who caused to be rebuilt a mosque which had been demolished in the course of some communal disturbances.

The latest in the chain of the local museums of the Department is the Tipu Sultan Museum at Srirangapatna. Located in the Darya-Daulat-Bagh, the Museum displays the relics associated with Hyder Ali and Tipu Sultan. In arranging the display great care had been taken not to disturb the extensive paintings on the walls and ceilings of the building, which itself is a monument of national importance.

The architectural survey of temples registered further progress. In the northern region a detailed study was made of temples dating from 400 to 800 and providing a link between the Gupta and Pratihara styles of architecture. Work on the distinctive group of brick temples in Kanpur and Fatehpur Districts of Uttar Pradesh was also taken up. In the southern region, particularly noteworthy was the discovery of four cave-temples at Advi-Somanapalli, District Karimnagar, Andhra Pradesh. Besides, the survey of the cave-temples in the Pandya and Kerala regions was continued. A detailed study of the recently-excavated brick temples at Nagarjunakonda revealed many an interesting feature.

The work on the conservation of monuments continued in full swing. Particular mention may be made of the following: the Zanana-Mahal, Siva temple, Allah Kabra's house and other monuments at Chitorgarh; the rock-cut caves at Ajanta, Ellora, and Aurangabad; Hauz-Khas, the tomb of Sultan-Ghari, Kotla Firuz Shah, Jami'-Masjid and Jantar-Mantar in Delhi; the Sibdol temple at Sibsagar; the Sun temple at Konarak; the Tantipura mosque and other monuments at Gaur; Mariam's house and other monuments at Fatehpur Sikri; the palace-complex in the fort at Golkonda, the Svarga-Brahma and other temples at Alam-pur; Dariya-Daulat-Bagh at Srirangapatna; and the Papanatha and other temples at Patad-kal. Amongst the excavated sites at which conservation-measures were undertaken were Salihundam, Lothal, Ratnagiri, Kausambi and Sarnath.

The work of chemical preservation included the cleaning of the paintings at Ajanta, Bagh and Srirangapatna.

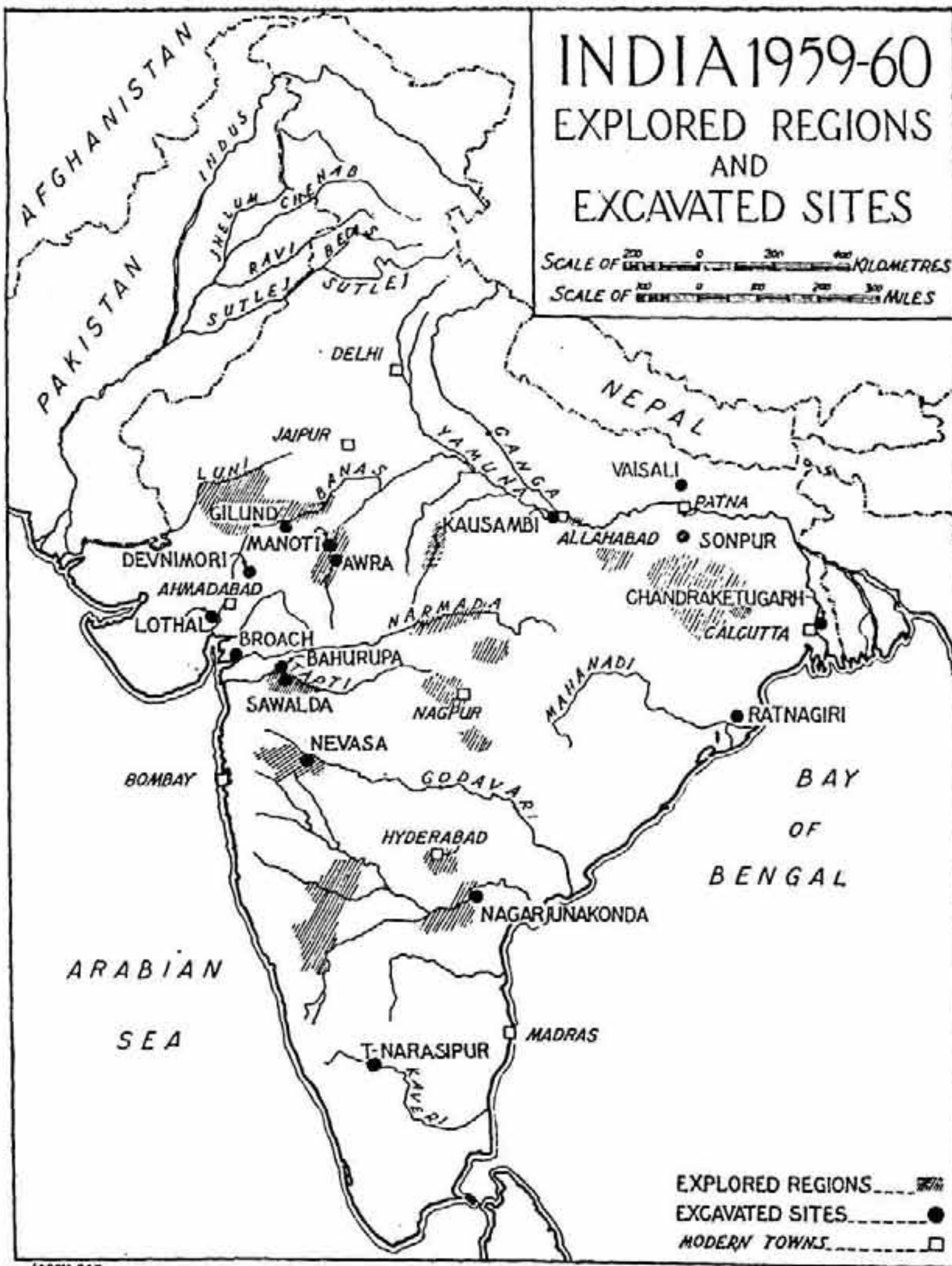

INDIA 1959-60
EXPLORED REGIONS
AND
EXCAVATED SITES
SCALE OF KILOMETRES
SCALE OF MILES
AFGHANISTAN
PAKISTAN
NEPAL
INDUS
JHELUM
CHENAB
RAVI
BEAS
SUTLEJ
DELHI
JAIPUR
LUNI
BANAS
YAMUNA
GANGA
VAISALI
PATNA
SONPUR
ALLAHABAD
KAUSAMBI
GILUND
MANOTI
AWRA
DEVNIMORI
AHMADABAD
LOTHAL
BROACH
BAHURUPA
NARMADA
TAPTI
SAWALDA
NAGPUR
MAHANADI
CHANDRAKETUGARH
CALCUTTA
RATNAGIRI
NEVASA
BOMBAY
GODAVARI
HYDERABAD
BAY
OF
BENGAL
NAGARJUNAKONDA
ARABIAN
SEA
MADRAS
T-NARASIPUR
KAVERI
EXPLORED REGIONS
EXCAVATED SITES
MODERN TOWNS
JASSU RAM

FIG. 1

ANDHRA PRADESH

1. EXCAVATION AT NAGARJUNAKONDA, DISTRICT GUNTUR.—In continuation of previous years' work *(Indian Archaeology 1958-59—A Review,*[2] p. 5), excavation in the Nagarjunakonda valley by the Nagarjunakonda Excavation Project of the Department,[3] under Dr. R. Subrahmanyam, assisted by Shri H. Sarkar, Shri Raghbir Singh and Shri Abdul Wahid Khan, with general guidance from Shri T. N. Ramachandran, brought to light new evidences on the palaeolithic, microlithic, neolithic and megalithic cultures, apart from laying bare remains of the historical period.

Trenches laid in the north-western corner of the valley (fig. 2; pi. I A) revealed palaeolithic tools, mostly cleavers (pi. I B), below a pebbly stratum, layer 7 and a subsequent blade-flake industry (pi. I C) on an earlier talus-surface, layer 5. These two layers, 5 and 7, were practically bereft of tools save a few palaeoliths. The intervening layer, 6, an irregular gravelly deposit, occasionally yielded a few tools and cores in the Upper Palaeolithic tradition. No blade-flake was discovered below layer 4, overlying the talus-surface. The evidence clearly indicated a time-interval between the palaeolithic and blade-flake industries.

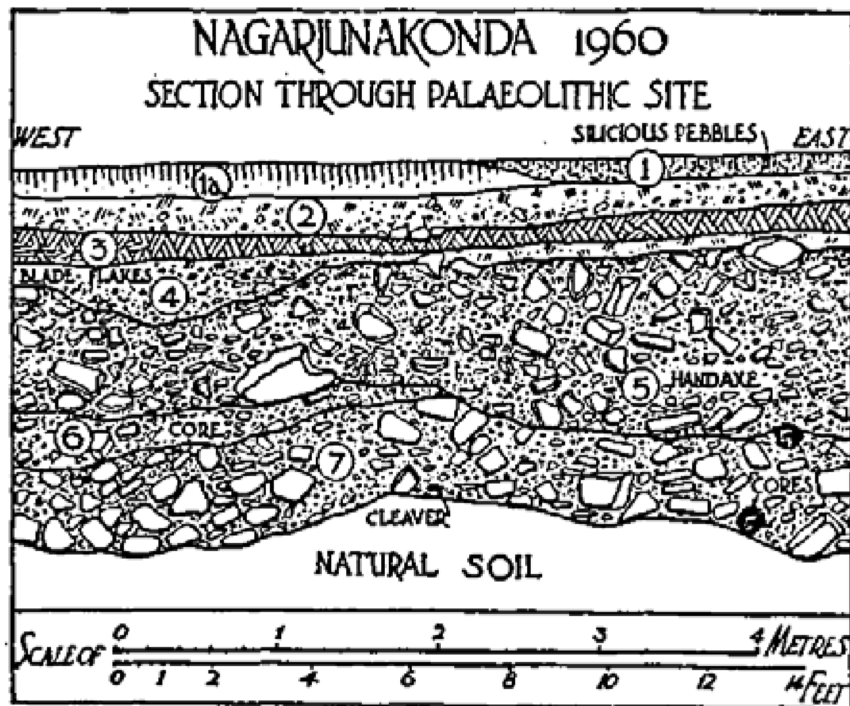


FIG. 2

1 See fig. 1.
2 This publication is referred to in the following pages by the year only.
3 'The Department', here and in the following pages, refers to the Department of Archaeology, Government of India.

The repeated occurrence of pebble-deposits within the valley may suggest that the river Krishna once extended its arms into the interior of the valley.

A microlithic site was discovered on the eastern bank of a perpetual rivulet within the valley. It appeared to be a factory-site, where finished tools—those too mostly unused or rejected—constituted a negligible proportion to pebbles, cores and waste flakes. The industry was essentially a non-geometric one in chert or flint, not associated with pottery. The tools consisted of retouched and unretouched blades, lunates, crescentic points, scrapers and a solitary burin. A fairly large number of quartzite blade-flakes were recovered with microliths, though it was difficult to determine whether they were an appendage to the microlithic industry or were a survival of a previous facies.

A microlithic industry in quartz, consisting of such tools as awls, points, scrapers and burins, but no blades, was found on the surface near the river. Blade-flakes were noticed in this area also.

Further excavation at the neolithic sites exposed the plan of an oblong house measuring 18 x 14 ft. (pl. II A). Two large pits, possibly pit-hearths, situated in the centre of the house, yielded a blunt-butted axe and a fabricator, besides fragmentary animal bones, potsherds and crystal microliths. Another pit in the vicinity had the skeletal remains of a deer in association with two intact pots.

Twelve out of a total number of eighteen megaliths were excavated—all located in a cluster in close proximity to the south-east corner of the Ikshvaku citadel. Outwardly the megaliths of this cluster were, as a rule, cairn-circles (pl. II B). The stone circles, built of unhewn granite boulders, varied in diameter from 12 to 30 ft. The site had not been occupied prior to the construction of the megaliths. One of the excavated megaliths, Megalith VII, revealed an oblong cist (pl. III A), all the others being pit-circles.

The cist of Megalith VII, deeply buried in the pit, internally measured 5 ft. 11 in. x 1 ft. 6 in. at the floor-slab level. To prevent an inward collapse, the eastern and western orthostats were erected inside the longer orthostats, the ends of which projected by 9 in. laterally. There was no port-hole in any of the orthostats. The multiple capstone over the filling of the pit was visible through the denuded cairn bounded by a stone circle, 18 ft. in internal diameter. The grave-furniture, consisting of seventeen pots and three iron objects, was kept outside the cist. Right on the floor-slab were two long human bones and a copper armlet (pl. III B), while some animal bones lay over a thin deposit of fine earth covering the human bones towards the west. A few human bones and animal bone splinters also occurred outside the cist at the level of the pottery. The cist was closed with three covering-slabs, out of which the middle one was found to have been removed. A few pots kept at a higher level outside the cist and a few overlying the covering-slabs indicated secondary offerings. No stand was found in the pottery recovered from the cist-circle, though it was of common occurrence in the pit-circles.

The pit-circles presented homogenous characteristics, though with variations in details. A uniform principle was followed in the arrangement of bones and offerings in all of them. Over the rugged surface of the pit-floor, carried deep into the hard granitic rock, was spread a 3- to 6-in. thick bed of ash for carrying bones. The primary offerings, consisting of the usual megalithic pottery, iron objects and beads, were arranged over the ashy bed. The secondary offerings were kept over the primary ones, which were generally covered by a thin deposit of fine alluvial clay. The pits were filled up with grey alluvial clay occasionally mixed with stones. The filling, spread laterally on the top of the pit and finally covered with a cairn-heap or a mere scattering of rubble, was bounded by a stone circle.

Megalith IV had the largest stone circle in the cluster, measuring 30 ft. internally. The pit, 9 ft. 9 in. x 3 ft. 10 in. at the bottom, oriented east-west, was carried down to a depth of 7 ft. 9 in. below the ancient level into the hard granitic rock. It yielded no furnishing goods

or skeleton, with the exception of two small splinters of bones on the pit-floor. The pit was filled with grey alluvial clay, at the top of which a hole, 4|in. in diameter, slightly tilted upwards towards the west, was found cut to a depth of 2 ft. The low cairn was mostly composed of quartzite rubble and muddy earth.

Megalith V (fig. 3), with a loose rubble scattering over it, was bounded by a stone circle, 22 ft. 3 in. in internal diameter. The pit, measuring 9 ft. x 3 ft. 4 in., was 6 ft. 7 in. deep. Its floor, oriented north-south, was covered with an ashy bed of a maximum thickness of 1 ft., over which lay disarticulated human bones belonging to more than one individual, with a skull towards the north. Twentyfour pots, consisting of the stand, dish and bowl of the Black-and-red Ware, were placed along the sides of the pit. Of the iron objects, one was a 42-in. long lance and another a wedge.

Megalith VI, with a stone circle 26 ft. 6 in. in internal diameter, had an oblong pit, 9 ft. deep; it had its major axis oriented east-west and was undercut towards the bottom to the size of 10 ft. 6 in. x 5 ft. Twentyeight pots and two iron objects constituted the offerings, which appeared to have been placed on three different occasions. Three fragmentary skulls and bones belonging to more than one individual were interred over a 6-in. thick bed of ash spread on the pit-floor. Some animal bones also occurred as secondary offerings towards the south-west corner of the pit.

Megalith VIII had a pit, 9 ft. 8 in. x 4 ft. 1 in. at the floor and 7 ft. deep, oriented east-west. The low cairn enclosed by a stone circle, 24 ft. 4 in. in diameter, dwindled towards the centre. Over a 6-in. thick ashy bed on the pit-floor were laid a few splinters of bone, fourteen pots, including a large jar bearing on the shoulder applied bands with finger-tip impressions, six iron objects and a terracotta spindle-whorl. As in Megalith IV, here again an obliquely-cut hole, 1 ft. 6 in. deep and 3 in. wide, was noticed dug into the top of a greyish alluvial filling.

Megalith IX (pl. II B) revealed a multiple capstone composed of seven oblong slabs covered by a low cairn within a stone circle, 19 ft. in internal diameter. The capstones, placed in a north-south direction at right angles over the major axis of the oblong pit below, varied in dimensions—the largest measuring 10 ft. x 2 ft. x 101/2 in. and the smallest 3 ft. 6 in. x 1 ft. 4 in. x 11 in. On one of the slabs was depicted on one of its sides touching the next slab a roughly hollowed-out figure of an animal, while the upper side of another slab bore petro-glyphic carvings in half-an-inch thick lines, representing figures of indeterminate shapes, one perhaps an animal with a rider. The east-west grave-pit, measuring 9 ft. x 4 ft. at the floor and 7 ft. 3 in. deep, yielded thirty pots and seven iron objects with a few bones, probably animal, laid over a 3-in. thick bed of lime. The offerings in this megalith seemed to have been placed on three different occasions.

Megalith X, with a stone circle of 23 to 25 ft. internal diameter, revealed a 6-ft. deep pit oriented north-south, measuring 8 ft. x 3 ft. 9 in. On a thin bed of lime over the pit-floor were disarticulated human bones, seemingly belonging to more than one individual. Sixteen pots, including a jar, and five iron objects were placed along the sides of the pit around the bones. Some of the offerings appeared to have been kept subsequent to the interment of bones.

Megalith XI presented the smallest circle in the group, with an internal diameter of 12 ft. The oblong grave-pit, 8 ft. 2 in. x 4 ft. 4 in., was oriented north-south and cut into the hard rock to a depth of 6 ft. On the pit-floor was spread a 6- to 9-in. thick bed of fine lime and earth, over which disarticulated human bones were placed, with a skull towards the north and another in the middle. Thirteen pots and an iron object were recovered from the bottom of the pit—a few of them indicative of secondary offering. A terracotta spindle-whorl was found below the second skull.

Megalith XII had a stone circle, 18 ft. 6 in. in internal diameter, and a pit, oriented north-south, measuring 8 ft. 3 in. x 3 ft. 7 in. and dug down to a depth of 8 ft. 3 in.

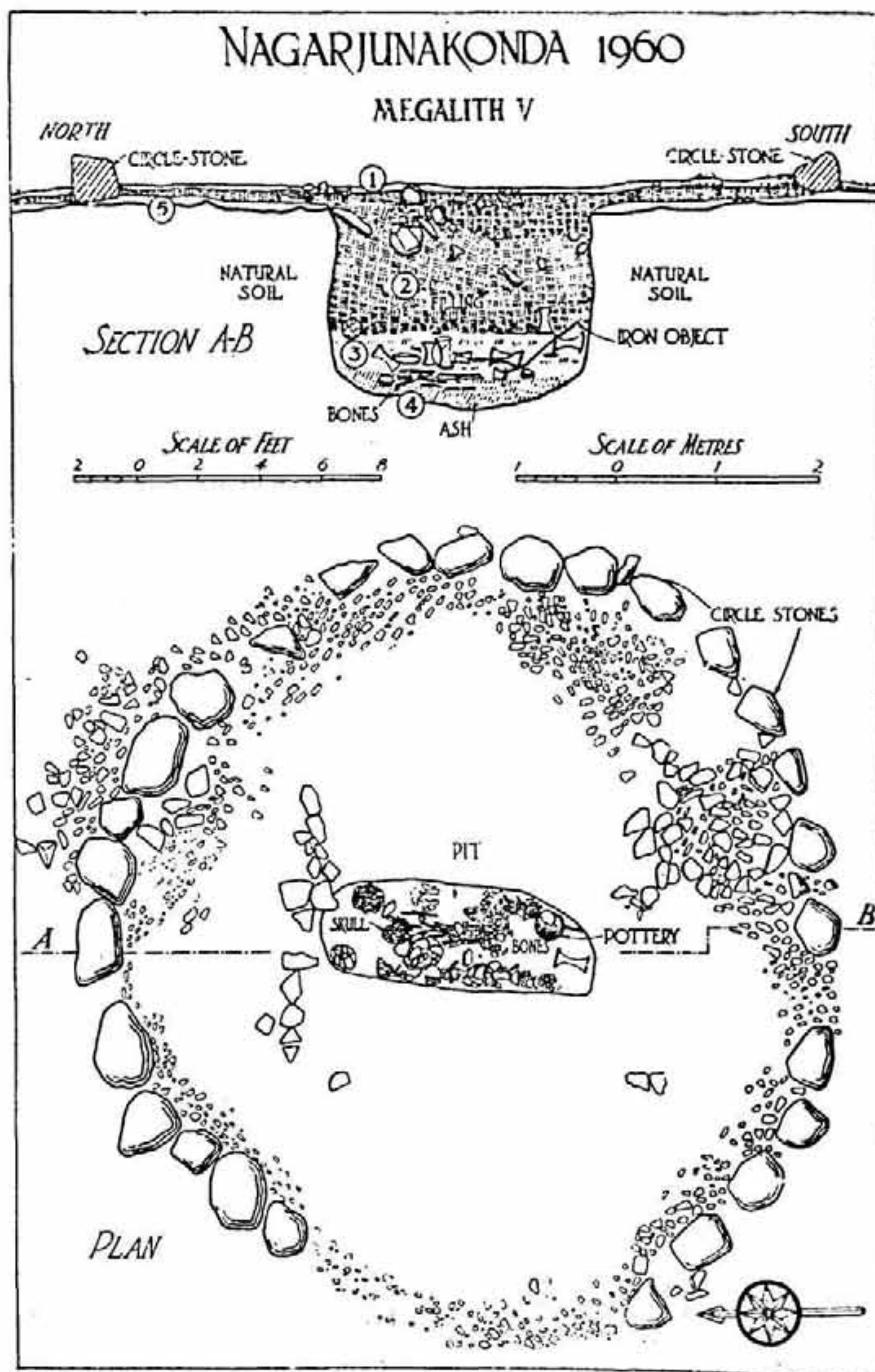

NAGARJUNAKONDA 1960
MEGALITH V
NORTH
SOUTH
CIRCLE-STONE
CIRCLE-STONE
NATURAL SOIL
NATURAL SOIL
SECTION A-B
IRON OBJECT
BONES
ASH
SCALE OF FEET
2 0 2 4 6 8
SCALE OF METRES
1 0 1 2
CIRCLE STONES
PIT
SKULL
BONES
POTTERY
A
B
PLAN

FIG. 3

A bundle of disarticulated human bones was placed over a thick ashy bed on the pit-floor within an area demarcated by a few stones. Three iron objects and eight pots were primarily placed at the level of the bones, over which a 3-in. thick accumulation of ash and lime carried two pots placed as secondary offerings. A 1-ft. thick deposit of grey alluvial earth covered the grave-furniture, over which lay the articulated skeleton of a. grown-up bovine animal towards the northern half of the pit. The skull-cap of the animal was cut slightly above the upper teeth portion on the alveolar margin, indicating a sacrifice. A single pot was placed beside the animal. Over another 1-ft. thick deposit of alluvial earth covering the skeleton was found the articulated skeleton of a second animal, probably a calf.

Megalith XIII had a stone circle with an internal diameter of 18 ft. to 19 ft. 6 in. The north-south pit, 8 ft. 5 in. x 3 ft. 5 in., was 7 ft. 5 in. deep. Over the pit-floor, covered with a 4- to 6-in. thick ashy bed, lay disarticulated human bones with funerary offerings of eight pots. Nine pots were subsequently placed on 6- to 12-in. thick deposit of alluvial earth covering the lower ashy bed.

Megalith XIV had a stone circle, 17 ft. to 19 ft. 6 in. in internal diameter. Within it an oblong grave-pit, oriented north-south and measuring 8 ft. 3 in. x 2 ft. 9 in., was sunk to a depth of 5 ft. 1 in. Over a 3-in. thick bed of ash covering the uneven surface of the pit-floor lay a fully-articulated and extended skeleton, perhaps of an adult female (pl. IV A). The skeleton, 5 ft. 2 in. long, lay with the skull towards the north and the body, turned to the left, facing east. Spiral ear-rings made of gold wire (pl. IV B and C) were lying near the ear-lobe portion of the skull. Thirtyfive gold beads and eighteen silver spacing-beads (pl. IV C) were found in the neck region of the skeleton. The hands touched the pelvic region. The skeleton was surrounded by funerary offerings consisting of twelve pots and two iron objects. A few animal bones were also lying over an ashy deposit covering the skeleton. The pit was filled with brownish alluvial earth and stones.

Megalith XV was the second pit-circle in the present group to yield a complete human skeleton. The disturbed stone circle internally measured 14 ft. in diameter. The east-west pit, 8 ft. 61/3 in. x 3 ft., was 5 ft. 8 in. deep. A 6-in. thick bed of ash and lime covered the rugged pit-floor. Over this bed lay a 5-ft. long extended and fully-articulated skeleton with an east-west orientation, the major axis being 106° 30' magnetic and the skull placed towards east. The body faced south, and its folded arms rested on the chest. The primary offerings consisted of five pots and an iron object, while the secondary ones were represented by six pots placed over a 8- to 12- in. thick deposit of alluvial earth and lime covering the skeleton. The filling of the pot was the usual grey alluvial earth.

The excavation of the rubble structures (fig. 4), distributed practically all over the valley but with a concentration to the east of the citadel, revealed their residential character, though mostly only their compound-walls, the largest of them measuring 250 x 200 ft., could be found. The general plan of the area, lying to the east of the citadel, would clearly show that it represented a well-laid-out township, possibly the eastern part of Vijayapuri mentioned in inscriptions. It was provided with streets, lanes and by-lanes, measuring 25 ft., 15 ft. and 8 ft. in width respectively. The main street practically divided the township into two halves. That these structures belonged to the Ikshvaku period was evident from the typical pottery, terracotta figurines, beads, metal objects and a large number of lead coins belonging to the first three Ikshvaku kings. Practically every compound was found to have been associated with large storage-jars (pl. V A), often arranged in rows. The most interesting amongst these units was a house identified as a goldsmith's shop (pl. V B), which yielded terracotta crucibles, a touchstone, an iron pestle, terracotta and stone weights, terracotta bangles, ear-rings and oblong moulds with designs for ornaments (pl. VI). Another house in the same area had a hoard of nine hundred Ikshvaku coins kept in a small pot.

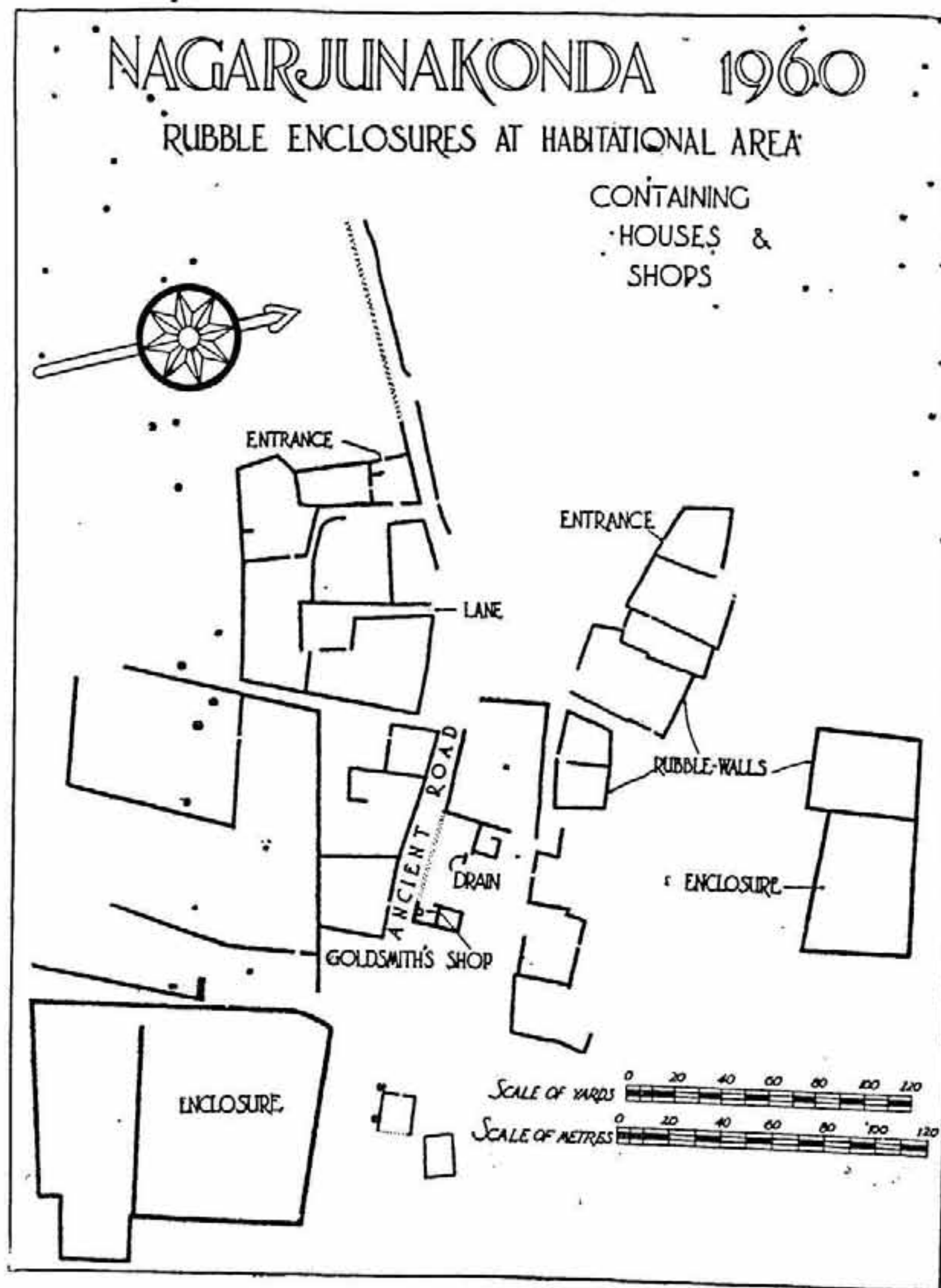

NAGARJUNAKONDA 1960
RUBBLE ENCLOSURES AT HABITATIONAL AREA
CONTAINING HOUSES & SHOPS
ENTRANCE
ENTRANCE
LANE
ANCIENT ROAD
RUBBLE-WALLS
DRAIN
ENCLOSURE
GOLDSMITH'S SHOP
ENCLOSURE
SCALE OF YARDS 0 20 40 60 80 100 120
SCALE OF METRES 0 20 40 60 80 100 120

FIG. 4

2. EXPLORATION IN DISTRICT KURNOOL.—Further exploration *(1958-59,* p. 10) was carried-out by Shri N. Isaac of the Deccan College Post-graduate and Research Institute, Poona, partially in association with Dr. H. D. Sankalia. The results were as follows.

First, it became possible to correlate broadly and provisionally almost all the sites with the terraces observed at Krishnapuram on the river Bhavanasi, at. Yeguvacherlopalli, Dornal and Tokapalli on the Tigaleru, at Ummadivaram on the Kandleru, at Chepalamadugu and Gollapalli on the Duvvali, at Yerragondapalem, Malinthapadu, Markapur, Gollapalli and Urnmadivaram on the Gundlakamma and at Tandrapad on the left bank of the Tungabhadra near Kurnool, the last-named site being discovered by Dr. Sankalia.

Two terraces, followed by a modern flood-terrace, were noticed. The first was at the highest level and the modern flood-terrace at the lowest level in relation fo the water-table, the second occurring in between the two. Two gravel-deposits found in association with the deposits of the rivers differed from one another in character and composition but fitted in fairly well with the character and composition of the two early terraces.

The archaeological material discovered in association with the deposits related provisionally to the two terraces consisted of tools of Series I and II. The earlier gravels related to the first terrace yielded tools of Series I, invariably with some fresh tools of Series II. The younger gravels, related to Terrace II, yielded tools of the latter Series, sometimes with heavily-rolled tools of the earlier Series and, at one or two places, especially at Krishnapuram, with some fresh flake-blades of quartzite, technologically different from tools of Series II and certainly not partaking of the character of the microlithic industry.

Secondly, at a number of places, such as Yeguvacherlopalli, Dornal, Ummadivaram, Miriampallf, Yerragondapalem, Markapur, Ravipadu, Giddaluru, Diguvametta, Dronachalam, Bugganipalli and Panyam Cement-factory, lithic tools and megaliths were found close to-gether. Further, at such places as Timmapuram, Tokapalli, Kalagotla and Patapadu, stone tools, megaliths and the remains of the early historical period were found to co-occur. Disturbed megaliths at a number of places yielded the Black-and-red Ware. From the histori-cal sites came the Red Polished Ware and sometimes also the Black-and-red Ware.

Dr. A. P. Khatri of the Council of Scientific and Industrial Research, New Delhi, explored the caves and rock-shelters in the limestone area of the Erramalai hills. Besides visiting the known groups of caves, viz. Billasurgam, Krishnamakona, Sanyasulgavi, Gurlagutta and Yaganti, he discovered three large caves in a thickly-forested gorge in the Nilakoya valley, situated more than 15 ft. above the ground-level and possessing undisturbed floor-debris. Near the Bugga temple on the Kurnool-Betamcharla road, a rock-shelter having paintings in red ochre was discovered, with chalcedony microliths, such as fluted cores, scrapers, points and flakes, occurring in its vicinity.

A megalithic site was also/discovered on the northern bank of the Tungabhadra behind the medieval fortress, opposite the town of Kurnool. The sitens on a mound, now a ploughed field, with a scatter of pottery and neoliths all around.

Near the megalithic site were obtained from the high grounds a large number of jasper tools of Series II.

According to Dr. Khatri's observations, some of the sections of the Sagileru near Giddalur, said to be revealing the Pleistocene sequence, were actually of recent origin, which could have been formed by the river in any flood. On the other hand, three terraces were noted by him on the Sagileru, the topmost one being the earliest. On the earliest he found a factory-site with a large number of fresh tools. The tools obtained from the last terrace, formed by the present bed of the river, were rolled, being possibly derived from the earliest. The second terrace, under cultivation, could not be examined.

A rich collection of tools was made from the sites previously named as Giddalur I and Giddalur II. The collection included Clactonian flakes, the platforms of which were faceted after they had been flaked, thus showing a great resemblance to the Levallois flakes.

Dr. Khatri made a fresh collection of a large number of neolithic tools from the top of the Sannarasamma hill, near Sanganakallu, about 3 miles north-east of Bellary. The collection included a few new types of neolithic celts along with axe-like cores bearing a superficial resemblance to Acheulian handaxes. The importance of this discovery lies in the fact that such cores are found at the flint-factory sites at Sukkur and Rohri in Sind.

Shri B. Raja Rao of the South-eastern Circle of the Department collected a number of palaeoliths from three sites, Kakanur, Santajutuni and Bandi-Atmakur, along the stream Galeru in Nandyal Taluk. Of the palaeoliths collected from Kakanur (fig. 5, *1* and *2*), a handaxe showed a heavy patination and encrustation of gravel and *kankar*. Bifacial tools were collected from Santajutuni (fig. 5, *3* and *4)*. The collection from Bandi-Atmakur (fig. 5, *5-8)* included handaxes and a few flakes, of which one was encrusted with gravel and *kankar*.

On a mound near Kakanur, the well-known Russet-coated Painted Ware and a black-and-red polished ware were found.

3. EXPLORATION IN DISTRICT MEDAK.-In the course of his exploration, Shri A. V. Narasimha Murty of the South-eastern Circle of the Department collected microliths from sites near Domargu, Bodupatla and Bardipur. At Domargu, microliths, including points, scrapers and blades, fluted chert cores and a few pieces of hand-made grey pottery, thick in section and coarse in fabric, were picked up.

4. EXPLORATION NEAR YELLESWARAM, DISTRICT NALGONDA.—The Yelleswaram valley, already known for its medieval structures *(1958-59,* p. 11) was also found to be rich in megalithic and neolithic remains. Further exploration by Shri H. Sarkar of the Nagarjunakonda Excavation Project of the Department, under the general guidance of Dr. R. Subrahmanyam, brought to light an early palaeolithic site on a high ground at the confluence of the Peddavagu-nulla with the Krishna near Rayavaram. The tools, comprising handaxes, ovates, cleavers and a small number of bifacially-worked choppers on quartzite pebbles (pl. VII A), represented typologically the Abbevillian to Acheulian stages.

BIHAR

5. EXPLORATION IN DISTRICTS DHANBAD. HAZARIBAGH, PALAMAU RANCH I AND S1NGHBHUM.-Under the auspices of the K. P. Jayaswal Research Institute, Patna Shri Sita Ram Roy, assisted by Dr. B. S. Verma and Shri L. A. Narain, carried out exploration in south Bihar.

The valleys of the North Koel (District Palamau), the South Koel (District Ranchi) the Damodar (Districts Hazaribagh and Dhanbad) and the Sanjai and Suvarnarekha (District Singhbhum) were surveyed and a few Stone Age sites were discovered.

The only palaeolithic site explored by the party was at Rajarappa in District Hazaribagh, though a few palaeoliths were picked up also from the sites adjoining the Barda bridge and Lotapahar near Chakradharpur. The palaeoliths from the site consisted of tools of Series 1 on quartzite or sandstone.

Marvania and Pratappur in District Palamau were found to be rich microlithic sites A large number of microlithic tools, both geometric and non-geometric, representing

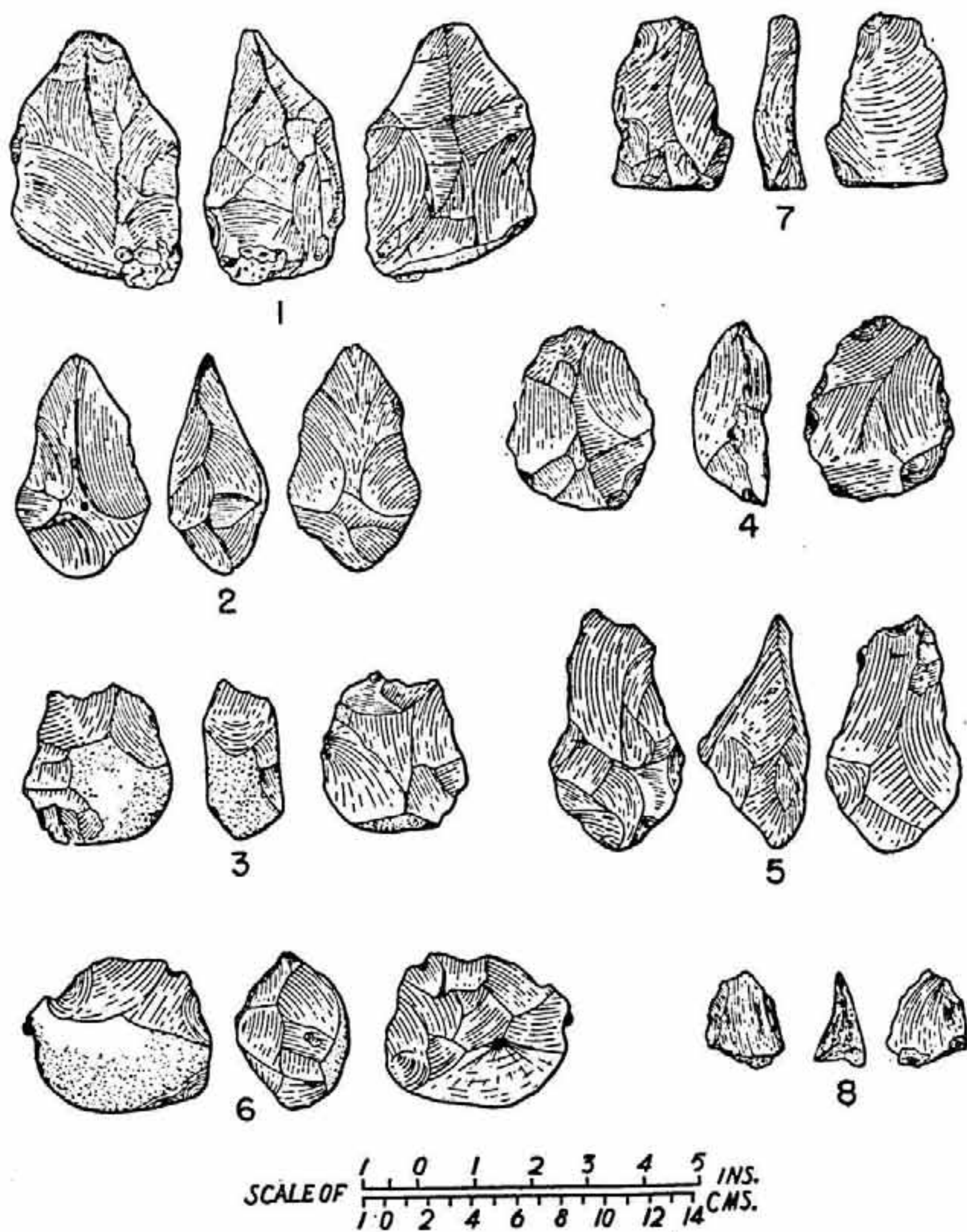


FIG. 5. *Kakanur: 1 and 2; Santajuturu: 3 and 4; Bandi-Atmakur: 5-8*

lunates, burins, points and blades, were picked up along with a few Upper Palaeolithic blades (pls. VII B and VIII A).

Microlithic tools, again both geometric and non-geometric, were collected from Kuchajharia, District Ranchi, and its neighbourhood. Though coarse grey and red wares were also found, their contemporaneity with the microliths is not certain.

Telmocha near Chas in District Dhanbad, Lotapahar near Chakradharpur, Dobo, Tamolia and Kuju near Jamshedpur, Chandil, Ghatsila and Chakulia, all in District Singhbhum, supplied a large number of microlithic tools (pl. VIII B). Of them, Lotapahar, Chandil, Ghatsila and Chakulia had already been known for their neoliths.

Two neolithic celts and a polished roller were found at Lotapahar and a neolithic celt at Chandil.

6. EXCAVATION AT SONPUR, DISTRICT GAYA.—Dr. B. S. Verma of the K. P. Jayaswal Research Institute, Patna, resumed excavation at Sonpur (1*956-57,* p. 19) under the general supervision of the late Dr. A. S. Altekar. Excavation revealed three Periods of continuous occupation (the first divided into two Sub-periods), represented by a 23-ft. thick deposit.

The pottery of Period IA (fig. 6, *1-7),* entirely wheel-made, included bowl-types in coarse black-and-red ware in abundance and bowls and vases in red and black wares in limited quantities. Bone pieces, a copper wire and a bone stylus were among the other small finds.

The pottery of Period IB, in fine black-and-red, red and black wares, consisted of the plain bowl, lipped bowl, perforated bowl, dish, vase, etc. (fig. 6, *8, 9, 11-13,16* and 17*).* There were fairly large-sized urns of reddish-buff colour with bones inside. Important was the dis-covery of some post-cremation burials (pl. IX A), each a circular pit, about 6 ft. in diameter and 21/2 ft. in depth, full of ash, bone pieces and common types of pottery in coarse red, black and black-and-red wares. Bones of animals and birds were frequently met with in the burials. Beads of terracotta and stone and arrow-heads of bone constituted the other finds of the Period.

Period II introduced the Northern' Black Polished Ware with golden and silvery colours, in which a few new types, such as the corrugated and carinated deep bowl, were re-presented (fig. 6,*10, 14* and *15).* The bowl, dish', etc., in black-and-red and black wares of fine fabric continued. Beads of terracotta, stone and glass, weights of steatite, figurines of birds and *nagas* of terracotta, nails and blades of iron, styluses of bone, socketed arrow-heads of ivory and horn and a silver punch-marked coin were the important finds.

Period III was marked by the absence of the N. B. P. Ware and black-and-red ware. Structures of bricks, of the average size of 17 x 121/2 x 3 in., appeared in the late stages of the Period. The common pottery was red ware of medium and coarse fabrics and included the sprinkler in the upper levels. The other finds were terracotta birds, chariots, wheels, weights, ear-ornaments, female torsos and bangles.

On the basis of the present finds, Period 1 would probably be dated back to earlier than 700 B.C., and Period III would come down to the beginning of the Christian era. Period II would be dated on the basis of the occurrence of the N. B. P. Ware therein.

7. EXCAVATION AT VAISALI, DISTRICT MUZAFFARPUR.—Excavation was started by the K. P. Jayaswal Research Institute, Patna, under the supervision of Shri Sita Ram Roy,- assisted by Shri L. A. Narain-and Dr. B. S. Verma, at three sites in the Vaisali area, viz.' Raja-Visal-ka-garh, Bhimsen-ka-palla and Chakramdas. '.

Four trenches, each measuring 60x21 ft., were laid at the centre of Raja-Visal-ka-garh beside the site excavated last year (*1958-59*, p. *12).* Another trench, 60 x 21 ft., was excavated at the centre of the western defence of the fort.

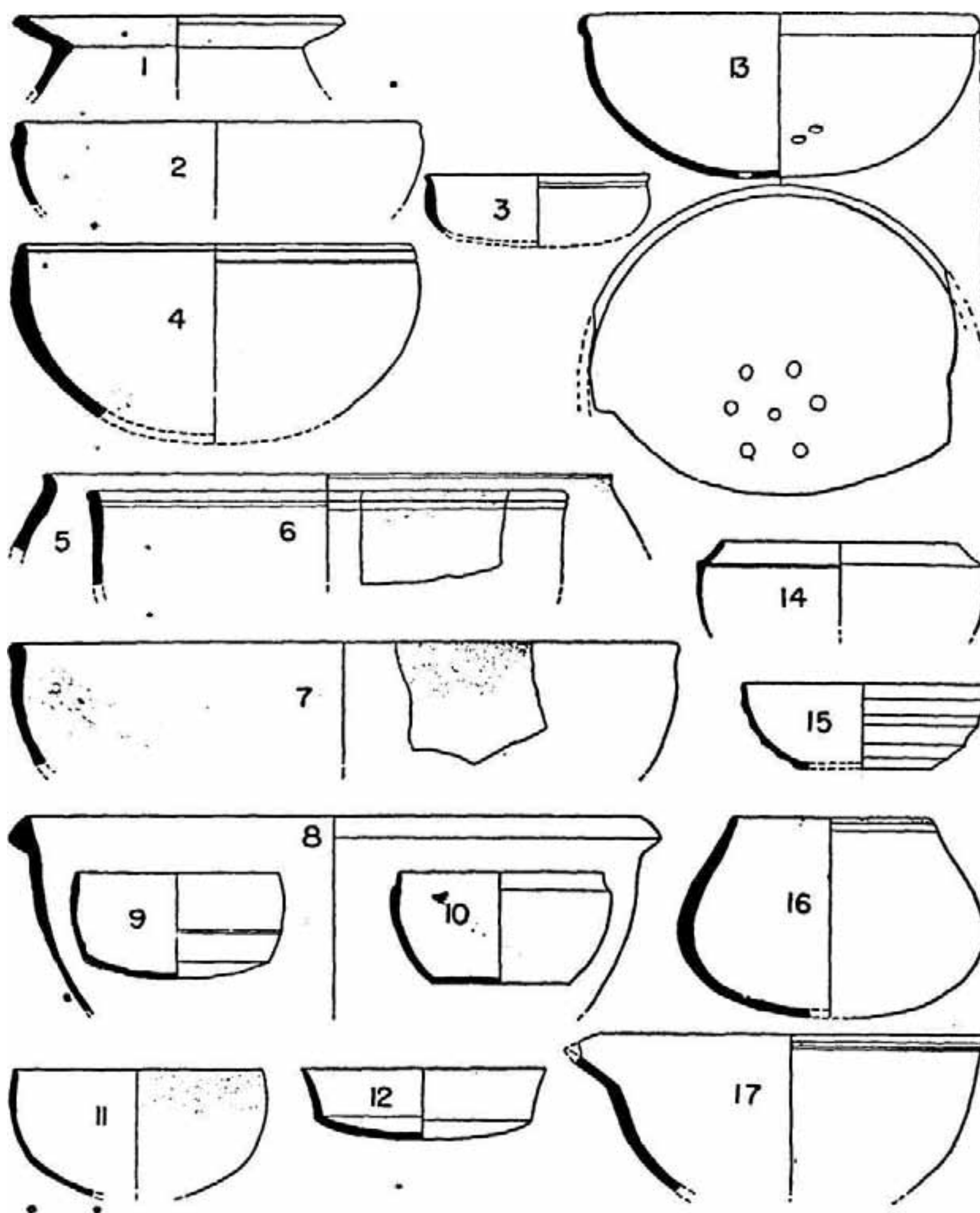


FIG. 6. Sonpur: pottery. 1-7, Period IA (1 and 2, red ware, 3, black ware, and 4-7. black-and-red ware), 8. 9, 11-13,16 and 17, Period IB (8 and 13, red ware, 9, black ware, and 1,l.12,16 and 17, black-and-rea ware); 10, 14, and 15, Period II (10, 14 and 15. Northern Black Polished Ware). (1/4)

At the first site brick structures of three Periods were encountered as last year, with the difference that a single one-brick wall was found this year to belong to the earliest stage of Period I not represented previously.

In Period I the bricks normally measured 1 ft. 7 in. x 10 in. x 3 in.; those in the earliest wall referred to above were 11 in. to 1 ft. 1 in. broad and 3 in. thick, the length being unknown. Terracotta figurines occurred in abundance.

Period II was associated with the sprinkler and deep bowl in red and grey wares of medium fabric. The bricks measured 1 ft. 3 in. x 10 to 11 in. x 2 1/2 in.

The structures of Period III were made of broken and re-used bricks. Terracotta figurines, associated with the Gupta period, were among the small finds.

No modification in the dates of the Periods proposed last year was called for as a result of the present excavation, except that the earliest wall of Period I could be regarded as belonging to an age earlier than the Sunga—the date ascribed to that Period.

Each Period yielded terracotta seals and sealings with Brahmi legends (pl. IX B). A few cast copper coins and iron objects, such as spears, swords, bangles, etc., were recovered from Period II.

The nature and dates of the three Periods of the defensive wall, evidenced in last year's excavation (*1958-59*, p. 12), were confirmed this year. A fragmentary gold necklace (pl. X A) was found id the mud-filling of Period II.

Two mounds lying in a north-south row near the pillar of Asoka at Kolhua, 3 miles to the north of the front, respectively measuring 183 and 179 ft. in basal diameter and 25 and 23 ft. in height, were taken up for excavation. Both proved to be mud *stupas.* At the centre of the northern mound, at a depth of 16 ft. from the top, were found a few copper utensils, viz. a spouted pot, a shallow basin with two handles, an incense-burner and a large spoon, along with a black-ware dish having four circles with dotted borders and *nand ipadas* within (pl. X B) and a red-ware bowl of medium fabric. One of the copper pots contained relics, presumably of a Buddhist saint (pl. X C). The southern *stupa* was badly disturbed.

While the Northern Black Polished Ware was absent, pottery associated with the Ware was found both in the core of the *stupas* and below them. The *stupas* may, therefore, date from the pre-Christian centuries.

The site of Chakramdas, 2 miles to the north-west of the fort, revealed, as a result of the excavation, two Periods of occupation below a badly-disturbed deposit with mixed-up objects of diverse ages. Period I was represented by the dish, bowl, basin, lipped bowl and trough in coarse black-and-red and red wares. The Northern Black Polished Ware, associated with grey and red wares, made its appearance in Period II, the other objects of the Period being a few bone pins.

GUJARAT

8. EXCAVATION AT LOTHAL (SARAGWAL/V), DISTRICT AHMADABAD.—Excavation at the Harappan site of Lothal (*1958-59*, p. 12) was brought to conclusion this year by the Excavations Branch of the Department, under Shri S. R. Rao. The limits of the ancient town were determined and conclusive proof of the trapezoidal structure laid bare last year having been a dockyard was obtained. Partially-excavated lanes, streets and houses were further exposed, and the alignment of the peripheral mud-bunds and platforms was determined. Renewed work in the cemetery revealed that the double burials had been confined to the third Phase of occupation

In the pits sunk at different places along the periphery of the mound with a view to determining the extent of the habitation-area, structural remains were noticed much farther

south of the outer platform, but no. regular structure could be made out except a brick-lined well, 8 ft. 5 in. in outer diameter, to the south-west of the spill-channel of the dockyard. The southern limits of the town thus extended to nearly 500 ft. beyond the foot of the mound. On the eastern and western sides there was no habitation beyond the dockyard and the present limit of the mound respectively. On the north, however, it must have extended 300 to 400 ft., if not more, beyond the edge of the mound. The circumference of the town at the height of its prosperity was thus slightly more than 2 miles.

The town was divided into six blocks, each built on an extensive mud-brick platform of a varying height and connected with each other by streets 12 to 20 ft. wide. This year, four houses in Street 4 (pl. XI A), two houses at the north-end of Street 1 and some structures in Street 3 were laid bare. The smaller buildings on either side of Street 1 were shops, each with two or three rooms varying in size from 12 x 9 ft. to 8 x 6 ft. The houses in Streets 2, 3 and 4 were larger: some measured 72 x 42 ft. It is interesting to find that some of the houses had verandahs in front, while others had large courtyards surrounded by rooms (pl. XI B). The south block was occupied by a large house, which had an elaborate drainage-system (pl. XII A), was served by a separate well and was built on a very high terraced platform overlooking the dockyard. It evidently belonged to an important person.

The isolated mud-brick platform in the south-west corner of the town was strati-graphically connected with the south block by a 170-ft. long trench, wherein houses of Phase II, built at a lower level and consequently damaged by flood, were noticed. A house at the north-end of the central block in Street 1 yielded nine circular gold pendants with axial holes, three steatite seals, several chert blades, a stone weight, a copper bangle and painted pottery treated with reserved slip.

The most important result of this season's work was the discovery of the inlet-and outlet-channels of the dockyard uncovered last year—a trapezoidal brick structure with an overall measurement of 710 x 124 ft. The inlet-channel, of the same width as the inlet-gap in the eastern embankment, viz. 23 ft., was originally cut into the natural soil but subsequently got silted up with desuetude. The outlet-channel was in continuation of the spill-channel exposed last year: it ran in a north-east to south-west direction, finally joining the silted-up creek. The brick walls of the channel, built by cutting into the bed-rock to a depth of 19 ft. below the present surface, was found damaged beyond recognition except for a couple of brick courses. The main drain of the town running over the southern wing of the outer platform discharged itself into the outlet-channel.

An oblong enclosure with walls of kiln-burnt bricks, 4 x 4 ft. (pl. XII B), exposed in Street 1, was identical on plan and presumably in purpose with the one exposed last year in Street 4 : each yielded large quantities of burnt earth and had a large painted jar near by; but the former had very few terracotta triangular 'cakes' and balls, abundant in the latter. A spoon with smoke-marks on both sides (pl. XV C) and triangular terracotta 'cakes' and balls were found close to the latter.

Interesting was the discovery of some technical instruments. One of them was a shell object, roughly similar to the 'cross-staff', with grooves meant for measuring angles of 180^0, 90° and 45° (pl. XIII A, second row, third object from left). Shell accounted for a variety of other objects as well (Pl. XIII A). Another object was a graduated ivory scale, each division roughly corresponding to 1.7 mm. (pl. XIII B). Terracotta plumb-bobs of different sizes and with or without vertical holes were also found.

Objects of copper and bronze included a mirror, a delicate needle, pins, fish-hooks, chisels of various sizes, a drill-bit used in bead-making and a fragment of a fine saw, probably used for cutting steatite disc-beads. A large number of retouched blades (pl. XIV A), some notched and others having tangs with single or double shoulders and still others blunted and polished, and engravers of shell and chert were found.

Of the other small finds, nine large circular gold pendants with axial holes, hollow conical ear-ornaments, nose-studs and corrugated finger-rings were important (pl. XIV B). Two miniature fan-like terracotta ornaments engraved with peculiar designs deserve mention. A model terracotta boat with provision for fitting mast (pl. XV A), a solid wheel of a toy-chariot in alabaster carved with geometric and other designs (pl. XV B) and three terracotta horses (pl. XV E) provide evidence on the means of communication.

In Phase B, succeeding Phase A, the mature Harappan occupation of the site, short parallel-sided blades of jasper and agate (pl. XV D) replaced long chert blades. The carinated bowl and non-carinated dish with or without stand gave way to the convex-sided bowl and carinated dish-on-stand. The goblet, beaker and perforated jar gradually disappeared. The painting on the pottery was marked by a stylization of the bird and other motifs. Further, the skilful combination of geometric motifs—the circle, triangle, square and wavy line—with naturalistic designs—such as the peacock, tree and leaf, of Phase A (fig. 7)—was given up in Phase B in favour of simpler individual motifs—the wavy line, frond, triangle and loop—in a limited space.

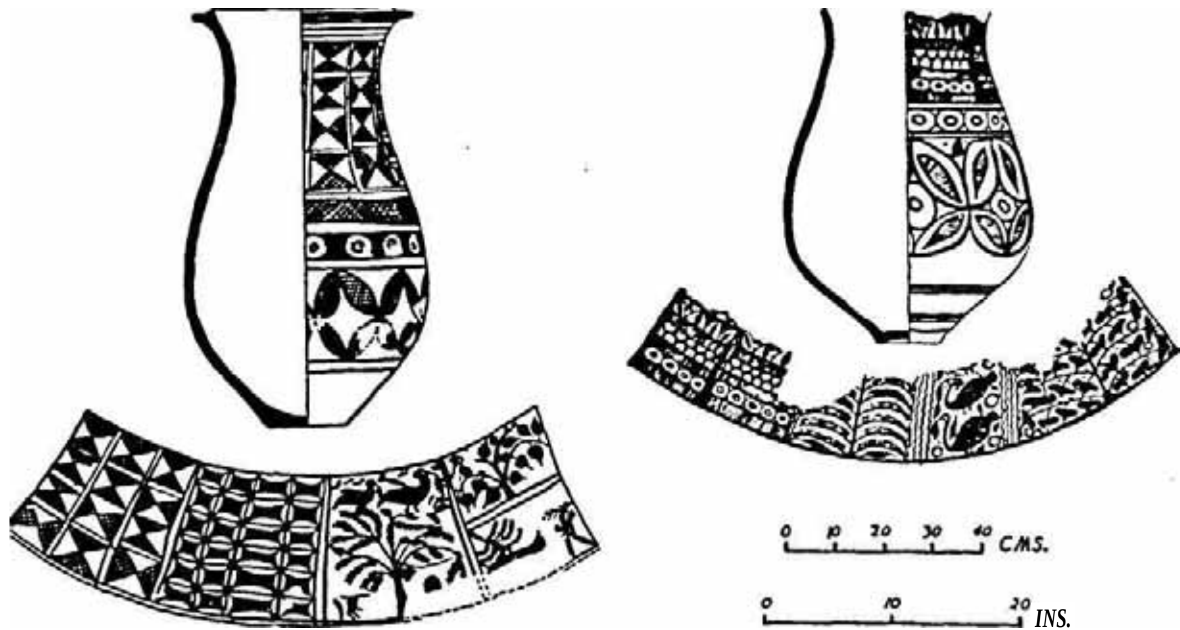


FIG. 7. *Lothah painted jars, Phase A*

The terracotta gamesmen had the shapes of pyramids and castles, while others were conical or cylindrical (pl. XVI A); some of the pyramidical ones had holes with broken ivory objects within.

In all, eight steatite seals (pl. XVI B) and three terracotta sealings were recovered, the latter bearing on the reverse impressions of cloth reeds and cord (pl. XVI C and D).

Seven more graves, five of Phase A and two of Phase B, were opened up in the cemetery-area (pl. XVII); five had one skeleton each and the other two were disturbed. The normal orientation of the bodies in the graves was north-south, but in one case it was east-west. The undisturbed graves had a large number of pots, and in one there were the horns and bones of a goat. It is now evident that the double burials met with in previous years were confined to the earliest burial-level, viz. Phase III, which had single burials as well The next two Phases had single burials only. No burial assignable to Phases I and II was traced.

9. EXCAVATION AT BROACH.—The Western Circle of the Department, under Shri K. V. Soundara Rajan, assisted by Dr. S. C. Ray, excavated at the town-mound at Broach, the ancient Bharukachchha of Indian literature and Barygaza of the classical geographers. This high mound on the bank of the Narmada, though extensive and compact, is almost completely sealed for examination by the busy town thriving on it, leaving only the eroded peripheral fringes on the river-side at the eastern and south-eastern limits available for excavation. The present small-scale excavation, restricted to three limited. cuttings on the fringes, revealed a 25-ft. thick cultural deposit (pl. XVIII A) over the natural black cotton soil, about 5 ft. thick, underlain by yellow earth which attains a natural elevation here. The occupation could be mainly divided into three Periods on the basis of the present data.

The strata of Period I, about 5 to 10 ft. thick, yielded black-and-red ware in good bulk; towards the upper levels occurred the Northern Black Polished Ware (of which only one sherd with bevelled edge and a copper-pin revetment was recovered) and many plain-ware types associated elsewhere with that Ware. The types in black-and-red ware (pl. XIX A) comprised the *lota*-shaped pot, dish, bowl and lid, devoid of any painting and generally thick-sectioned but mostly with a fine burnished slip. Their analogues, by way of stratigraphic context and cultural *ensemble*, can be seen at such sites as Timberya (Period I) and Nasik (Period II). The first inhabitants of the town appear to have raised a mud-rampart with a deep ditch on the outer side. While no structural remains were exposed, ring-wells (pl. XVIII B) in a cluster of five were found in one of the cuttings on the inner fringe of the rampart, with the plain types of pottery associated with the N. B. P. Ware, from foundation-pits of the wells. The other antiquities of this Period comprised a dozen bone arrow-heads (pl. XX A), similar to those found in Period II of Ujjain, pottery with moulded and stamped designs (pl. XIX B), terracotta disc ear-ornaments and gamesmen, beads of semi-precious stones, like agate, chert, chalcedony and jasper, glass and terracotta and shell bangles (pl. XIX C) The bead-industry at Broach should deserve special mention, since beads were found in large quantities and at all stages of fabrication, the shapes being spherical, barrel, triangular-sectiened and disc. The beginning of the Period may be tentatively datable to the third century B.C.

Period II was characterized by the occurrence of fragments of the Red Polished Ware in its lower levels, associated with many of the well-known plain types, in red ware as well as grey, of early historical affiliation. This Period, represented by a 10-ft. thick deposit, appears to have extended without break almost to the seventh-eighth century A.D. A few black-and-red ware sherds were also encountered in disturbed trenches at the lower levels of this Period. The mud-rampart appears to have been provided with heavy brick revetments, which subse-quently collapsed in a spread-eagle way. The bricks in these revetments were of the dimensions of either 1 ft. 4 in. x 11 in. x 3 in., or 1 ft. 1 in. x 8 in. x 2½ in. Among the antiquities of this Period may be mentioned terracotta flesh-rubbers, beads and decorated metal objects, shell bangles (pl. XIX C) and stone images, such as a *chaturmukha-linga* in green jasper (pl. XX B), of the sixth-seventh century, besides lead and copper Kshatrapa coins of the third century-at the lowest and middle levels.

Period III pertained, after a clear break from the previous one, to medieval and even later times, as revealed by plain and glazed pottery and coins. The rampart was built afresh and subsequently repaired in recent times.

10. EXCAVATION AT DEVNIMORI, DISTRICT SABARKANTHA.—Picturesquely situated to the east of the gorge through which the river Meshvo, a tributary of the Sabarmati, cuts through the Aravallis to enter the plains of north Gujarat and across which a dam is to be erected, Devnimori has the remains of a large Buddhist establishment, of

which *z stupa* and a monastery were excavated this year by the Maharaja Sayajirao University of Baroda, under Professor B. Subbarao, Dr. R. N. Mehta and Shri S.

N. Chowdhary.

The *stupa* was a massive structure with two square platforms, on which rose the cupola (fig. 8; pi. XXI A). Resting on a foundation of pebbly gravel in concrete, it was at the base 86 ft. square and its extant height was 34 ft. The top of the rower platform, 7 ft. 10 in. high, served as a *pradakshina-patha.* Each face of the platform was divided into eleven bays by twelve pilasters with modified 'Indo-Corinthian' capitals (pi. XXI B), above which was a decorated frieze of three rows of bricks: the first of them consisted of bricks with the diaper-design, the next of bricks carved with floral patterns and the last of dentils. The upper platform, now greatly decayed, had ten pilasters on each face.

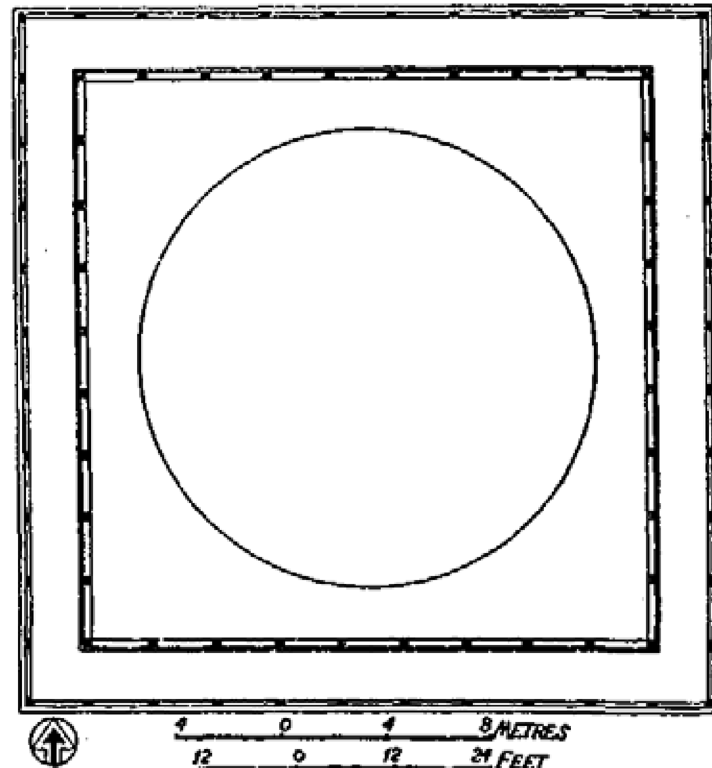


FIG. 8. *Devnimori: plan of the stupa*

From the way in which collapsed terracotta figures of Buddha, fragments of arches of niches (*chaitya*-arches), some complete with medallions (pl. XXII) or having wedge-shaped cuts to take the tops of Buddha-images, and a number of smaller pilasters fitting in with the bases of the arches were found in the debris it appears that the facade of the *stupa* was adorned with Buddha-images under arches resting on pilasters; indeed it is possible to guess that the images were placed in each alternate bay. Fragments of seventeen such images of which thirteen could be reconstructed almost fully, and three loose heads were recovered. Further, the remains showed that the central bay of each faces contained an arch with beautiful decorations; two of them had the *purna-kumbha* motif (pl. XXIV A), and one had two sitting lions on either side.

Of the seventeen images, all in *dhyana-mudra*, fourteen belonged to the fourth group of Harold Ingholt's classification of Gandhara sculpture—characterized by drapery indicated

by paired parallel lines (pl. XXIII A) and dated by him between A.D. 400 and 600. A note-worthy feature was the absence of the folds of the *sanghati* over the feet, which, in all cases, were left bare. Some images had both the shoulders covered, while in others the right shoulder was open (pl. XXIII B). The majority had the hair done in *ushnisha* and spirals turning right (pl. XXIII C); but the most beautiful image had the hair flowing upwards in the typical Gandhara fashion (pl. XXIII D).

On all considerations, the images belonged to the late Gandhara (Indo-Afghan) period, though some, with ribbed drapery and the Gandhara hair-style, would affiliate themselves to the third group of Ingholt (A.D. 300-400). It is difficult to be dogmatic at this stage, as profound questions of the relation between west and central Indian art-traditions are in-volved. In spite of the chronological overlaps between the late Kshatrapa, late Gandhara and early Gupta, it is also possible to visualize certain regional diversities, but there is little doubt that in the main the *stupa* belonged to the Gandhara tradition, its nearest parallels being the one at Mohra-Moradu at Taxila. By the sheer beauty of its terracotta and brick-work, it was close to its counterpart at Mirpur-khas.

An important find was a plaque depicting a complete *stupa* with two Bodhisattvas, one of them probably Padmapani. (pl. XXIV B).

The 120-ft. square monastery, situated to the south of the *stupa*, was in a much dila-pidated condition. It had eight cells on each of the four sides, with a brick-paved courtyard in the centre. The central cell on the southern side had a stone-paved floor and a platform of moulded bricks, suggesting a shrine. On the western side of the courtyard was a small platform, probably to serve as a stage. The bricks measured 1 ft. 4 in. x 10 in. x 3 in.

Both the *stupa* and the monastery had more than one Phase of construction. In the *stupa*, which had two Phases, the second Phase was marked by haphazard restorations of walls The monastery had three Phases. In the first it had a compound-wall in addition to the outer wall. In the second Phase the level was raised by about 4 ft. by a filling of clay; the building was slightly enlarged and the outer wall and the compound-wall of the first Phase' were joined together to form a thick wall. The last Phase was one of deterioration: the walls were re-constructed in a crude way, sometimes in broken bricks; the bricks used in the floor were smaller. The level of the main drain in the courtyard, flowing out in the north-west corner rose with each successive elevation of the floor-level.

Apart from considerations of the style of the images, the find of coins would also help in the chronology of the *stupa* and monastery. Of the nine silver Kshatrapa coins found on the floor of the second Phase of the monastery, one belonged to Visvasena (293-305). In the debris of the *stupa* was a coin of Bhatarka, the founder of the dynasty of the Maitrakas of Valabhi *(circa* 475). Thus, on numismatic evidence as well, it would be safe to infer that the structures were erected in early third century and lasted for the next three centuries This is further borne out by the pottery, which included a large number of fragments of the Red Polished Ware and the typical sprinkler and spout, one in the characteristic Kaolin Ware as found at Vadnagar and Kondapur.

MADHYA PRADESH

11. EXPLORATION IN DISTRICTS BHILSA AND GUNA.—In continuation of the exploration of the valleys of the Chambal and its tributaries by Shri A. P. Khatri (*1956-57*, p. 11), Shri Rameshwar Singh of the Deccan College Post-graduate and Research Institute Poona, explored the Betwa valley. The valley of the Shahzad, a tributary of the Betwa was also explored at Lalitpur in District Jhansi, Uttar Pradesh (p. 46). As a result of the exploration, sites with tools of Series I and II were located.

At Kirwai in District Bhilsa, a large number of pebble tools, choppers, handaxes and cleavers were found on the surface on the bank of the Betwa. The tools, of brown sand-stone pebbles, were generally rolled, but the handaxes and cleavers, of red sandstone, were fresh.

Similar tools were also found at Kotha, 2 miles off Mandi-Bamora railway-station.

Downstream, at Gonchi, 2 miles from Mungaoli railway-station in District Guna, a large number of tools of Series II were found on the river-bed. The Betwa has cut here a section in its left bank, exposing the tool-containing gravel and over it a 12-ft thick silt-deposit.

12. EXPLORATION IN DISTRICTS HOSHANGABAD AND NARSINGHPUR.—In continuation of last year's work (1958-59, p. 27), Dr. A. P. Khatri of the Council of Scientific and Industrial Research, New Delhi, intensively explored the Narmada valley from Barman-ghat to Jhansi-ghat in Narsinghpur District. The tributaries of the Narmada, especially the Sher, Umar and Shakkar, were also examined over long stretches.

In a gravel-bed at Piparia, Dr. Khatri found *in situ* over forty artefacts in the block-on-block technique, representing the earliest Phase of the Chellean and illustrating the evo-lution of the handaxe from the pebble to the earliest Abbevillian stages. They belonged mainly to a pebble industry and were huge, heavy and crude, similar to those found in the basal layers of the second bed at Olduvai gorge in east Africa.

Acheulian tools, some of them on jasper, were found in sandy layers deposited in cross-current, just above the second gravel; on this showing they would belong to the Upper Pleistocene.

The scraper-cum-point industry—Series II—was found in deposits with late Acheulian tools. It would accordingly be contemporary with the Acheulian stage of the handaxe culture, though to derive it from the latter would be out of the question. Attempt is being made to fix stratigraphically the loose gravels intervening between the deposits with the early Chellean and late Acheulian.

Of the. fossils collected in the exploration, mention may be made of six skulls—five *Bovid* and one *Hexaprotodon*—besides a large number of molars, rami and maxillae.

13. EXPLORATION IN DISTRICT MANDASOR.—In continuation of the previous work in the Chambal valley *(1958-59*, p. 27), the Department of Archaeology, Government of Madhya Pradesh, under Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, carried out an intensive exploration in almost the whole of the area to be submerged shortly as a result of a dam across the Chambal. Large parts of the valleys of all the important tributaries of the river were also thoroughly surveyed. Together with the excavations at Awra and Manoti (pp. 24 and 25), both lying in the submergence-area, the exploration yielded a complete sequence of cultures in the valley, from the palaeolithic to the early historical periods (fig. 9).

The terrace-system and the gravels were clearly noticeable at a place 3 miles down the stream from Jannod. Over a disintegrating sandstone bed was a continuous stratum of boulder-conglomerate. Here the explorers found tools of "Series I, mainly bifacial handaxes and cleavers, in the lower levels and handaxes, cleavers, discoids, ovates and a hollow scraper-*cum*-cleaver *in situ* in the upper gravel. The third gravel, a loose sand-deposition, yielded tools of Series II.

About a mile down this site the stream flows sluggishly, showing only one gravel and well-cemented sand and boulders with intrusions of loose gravel topped by yellow silt. Tools of Series II were found in the loose gravel in the bed. Some cleavers and pebble tools mostly bifacial, were also collected from here.

From Thaned to Takaria a sufficiently high gravel was seen running parallel to the stream nearly half-a-mile to its south, and some pebble tools and Clactonian cleavers were found there.

Interesting was the discovery of the topmost part of an oval structure on the north bank of the stream on what appeared to be a low mound, about 2 furlongs north-west of Thaned. It was formed of lumps of burnt clay and was surrounded by the remains of fire-burnt huge lumps of clay, probably forming walls thereof.

On the Undakhal, which pours its waters into the Tulsai, were found handaxes, cleavers and occasionally tools of Series II on chalcedony. In another large rivulet flowing by the villages of Jalod and Ghadod, a few specimens of a finer variety of Acheulian handaxes, borers and cleavers were picked up. Good specimens of tools of Series I and II, along with a hammerstone and a mace-head, were found in the rivulet near Manoti.

The Shivna, another tributary of the Chambal, was explored at Mandasor and Nahargarh with a view to studying the superim-position of gravels and tools. At the first of these places the second gravel, with occasional tools of Series II worked on yellow, green and red jasper, rested on the disintegrating trappian rock occurring at a level lower than the older gravel. The older gravel yielded a large core of jasper and a few scrapers, along with occasional tools of Series I, which were found overlying the exposed gravel. The older gravel did not yield any tool except a unifacial cleaver.

At Nahargarh, about 10 miles south-west of Mandasor, a single loose gravel was noticed on the east bank of the river. Here a few cleavers and discoids were found over the gravel, which also yielded a few tools of Series II, comprising scrapers and fluted cores.

At Koyali, about 6 miles north-east of Nahargarh, two low mounds were noticed; they yielded painted pottery of the type found at Nagda. At Koyala, on the opposite side of the village, was another low mound with the same pottery.

The Retam, a tributary of the Chambal, was explored near Sanjit, with a chalcolithic site. Though no stratified gravel was observed, a recent loose gravel yielded jasper tools of Series II, handaxes and cleavers of quartzite and few discoids. A well-stratified gravel between Pasewa and Sanjit was observed on the southern bank of the river. No tool was noticed in the lower

CULTURAL SEQUENCE IN THE CHAMBAL VALLEY



FIG. 9

gravel, but two Acheulian cleavers were found on the loose upper gravel overlying the lower one at a height of about 45 ft.

A mile to the north of Awra, the Chambal clearly showed at a few places two gravels, sometimes separated from each other by a loose boulder-gravel but elsewhere one resting over the other. Near Awri, on the opposite bank, a third gravel, containing tools of Series II —mainly blades, flakes and scrapers—was visible 30 to 40 ft. higher than the second terrace.

It is interesting to note that both crude and finely-worked tools were sometimes picked up from the same horizon. Another point worth noting is that all tools of Series I were found only in the first gravel and most of the tools of Series II in the second.

14. EXCAVATION AT AWRA, DISTRICT MANDASOR.—The Department of Archaeology, Government of Madhya Pradesh, under Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, conducted excavation at Awra, a deserted village, 3 miles west of Chandwasa, with a series of mounds, two of which, numbered 2 and 3, were selected for excavation.

Mound 2 was seen to have been occupied from about the fourth century B.C. to the beginning of the Christian era. In spite of the overlap of ceramic types and other objects throughout, the occupation could be divided into three Phases.

Phase I had three punch-marked coins and a round terracotta seal with a tree-in-railing and a left-armed *svastika* and the legend, in characters of the third century B.C., *[A] paraya,* 'of Apara', which may indicate the old name of the place. The other finds included flakes and blades of semi-precious stones, stoppers, bone points, a nail and an arrow-head of iron and balls, beads, bangles, stoppers, a perforated wheel and a bull of terracotta. The uppermost layer of the Phase had six pieces of the Northern Black Polished Ware.

Phase II yielded glazed pottery, together with other ceramic types of Phase I, including a sherd of the N. B. P. Ware. The terracotta objects comprised a bull, a wheel, beads discs and bangles. Arrow-heads of iron and stone, a mace-head, blades and flakes of stone and bangles of conch-shell constituted the other antiquities. The structural remains consisted of a coarse rubble wail and an oven and a square storage-tank of brick.

Phase III had virtually the same types of terracotta and other objects, but there was no N. B. P. Ware.

Excavation in Mound 3 proved to be more important. The lowest occupation in its 18-ft. thick deposit was chalcolithic in nature, with two Periods. Period I was represented by red ware with paintings in black, occurring profusely in the upper levels of the Period, which had also a fragmentary copper celt. The lower levels of the Period had a coarse black ware and a white-painted black ware. Period II was characterized by black burnished and painted black-and-red wares, as found at Manoti (p. 25). The top layer of this Period had a piece of the N. B. P. Ware, a small mother-goddess in ivory and, for the first time, iron objects The Period had fragmentary rubble walls.

Period III had two ring-wells standing side by side, one with seven and the other with eighteen rings. The top of the lower one was joined with pottery pipes, eight in number, ending in a bend to discharge sullage-water. Near the end was a large jar containing fine loose ashy soil and several small broken pots, nine small bowls, a fragmentary quern, a pestle and a few bones.

The remains of a residential house destroyed by fire, were brought to light. The walls were of reed and bamboo and were plastered with mud which had the impressions of thin wooden planks.

The objects of the Period included spear-heads, nails, looped hooks, a sickle, a chisel and a lamp of iron, two copper coins—one of them punch-marked and the other Satavahana- and a burnt ivory sealing with the legend *Jidhavasa* in characters of the third century B.C., the

last-mentioned objects dating the Period to the centuries immediately before the Christian era. The terracotta objects were limited to bulls and wheels. The pottery consisted of burnished red-slipped, coarse red and coarse black wares and included the storage-jar, bowl, lamp, miniature vase, cooking-vessel and dish.

After Period III the site was deserted for a very long period till it was re-occupied in medieval times.

15. EXCAVATION AT MANOTI, DISTR0ICT MANDASOR—Dr. H. V. Trivedi, assisted by Shri V. S. Wakankar, also excavated, on behalf of the Department of Archaeology, Government of Madhya Pradesh, at Manoti, where three trenches, one long and two short, were laid.

Two trenches showed seven successive Periods. The early pottery of the site fell into the following groups: (i) black-and-red ware with paintings on the inner surface, recalling the corresponding ware from Ahar and Nagda; (ii) red ware with black paintings, the spouted bowl of which could be compared with that from Maheswar; (iii) the same ware of fine fabric, in shapes akin to those of the late Phase of Lothal; and (iv) coarse black ware.

After an initial destruction of the site by flood, the habitation was protected by a huge mud-brick wall. Another major flood, indicated by a thick sandy gravel, once more affected the site, and after it came a change of culture.

The succeeding Periods belonged to the early historical to medieval ages, with occasional breaks in between.

16. EXPLORATION IN DISTRICT SEONI.—Shri A. V. Krishnamurthy of the Prehistory Branch of the Department surveyed the source-region of the Wainganga river and discovered several sites yielding Stone Age tools of different categories. Near Bandol, a 5-ft. thick bed of coarse pebbly gravel was seen resting on the Deccan trap and overlain by nearly 15 ft. of the brownish silt (pl. XXV). The gravel yielded large choppers, discoidal and irregular cores and scrapers on large flakes (pl. XXVI), but there was no bifacial handaxe or cleaver nor any tool of Series II.

The comparatively fine-grained and consolidated gravel at Alonia, Chhapara and Suakhera yielded tools of Series II. The collection included, besides scrapers, points and borers on chert, several tanged and shouldered points and arrow-heads and adze- or axe-like tools, burins and thick blades. Another interesting find from Alonia was a small cordiform tool of fine workmanship.

MAHARASHTRA

17. EXCAVATION AT NEVASA, DISTRICT AHMADNAGAR.-In continuation of the previous work at the site (*1955-56*, p. 8), Dr. S. B. Deo and Shri Z. D. Ansari of the Deccan College Post-graduate and Research Institute, Poona, assisted by Dr. M. S. Mate and Dr. G. G. Mujumdar of the same Institute and by trainees from the Universities of Bombay and Saugor, started a horizontal excavation at Nevasa on the Pravara, a tributary of the Godavari, under the general direction of Dr. H. D. Sankalia. The main Periods at the site and its neighbourhood were as follows, the first two having been identified as a result of the exploration of the river-valleys in the vicinity: Period I, early palaeolithic; Period II, middle palaeolithic; Period III, chalcolithic (1500-1000 B.C.); Period IV, early historical (second century B.C. to the beginning of the Christian era); Period V, Indo-Roman (first three centuries A.D.), and Period VI, Muslim-Maratha (fifteenth to eighteenth centuries).

The site consisted of three mounds: Mound I, to the north of the modern Jnanesvara temple, Mound II, to the south-west of Mound I, and Mound III, a series of hillocks running north-south to the west of Mound I. While they were seen separated from each other by nullahs, they had originally formed one unit in the past, covering an area of 1200 x 600 ft. The maximum height of the mounds above the present water-level of the Pravara was about 70 ft., to which habitational deposits contributed 32 ft.

The southern part of Mound I, called Area A, was found to have remains of the Muslim-Maratha age of Period VI at the top, whereas the northern part, Area B, over-looking the river, was mostly denuded of its later deposits and showed only scanty traces of early historical habitations of Periods IV and V, with chalcolithic deposits of Period III intact below.

In Area A, almost below the surface, the remains of an extensive habitation of Period VI, covering an area of nearly 25,000 sq. ft., were encountered (pl. XXVII A.). The foundation of the walls was made of undressed stones, some of them of huge dimensions, the crevices being filled with small stones, all laid in clay. Along with stones, brickbats, broken rotary-querns and tile-pieces were also used. The walls were made of 4-in. thick layers of compact whitish, clay mixed with fine gravel. Their maximum width was 3 ft.

The plan of the rooms and houses was haphazard. The rooms seemed to have been planned by arms projecting at right angles from two main walls, resulting in rooms and halls, the normal measurements of the former being 15 x 12 ft. and of the latter 24 x 20 ft. In addition, there were small annexes, each 6 ft. square, which could have been bath-rooms. The roof was probably of some light material like hay plastered with clay.

The interior of the rooms was plain. The floors were made either of rammed pot-sherds and brickbats or hard brown clay mixed with fine gravel. Storage-jars, partly sunk into the floor, and bowls with flared sides and flat discoid bases were of common occurrence. Two rooms showed evidence of burning. One of them had an earthen oven with three oblong sides and a smaller extension. Quantities of burnt gram and millet, with pro-fuse remains of ash and burnt wood, were found near by.

The irregular gaps between the houses no doubt formed lanes. One such gap, 4 ft. in width, was paved with small pebbles covered with compact clay.

The habitation was surrounded by an enclosing wall, the stone foundation of which was traced to considerable lengths in the east and west.

That the site had been inhabited by a fairly large number of people following a single profession, viz. manufacture of glass beads and bangles, was clear from the discovery in the houses of profuse quantities of these objects together with glass slag and waste in the debris and an oven in a corner of one of the rooms (pl. XXVII B). The oven—a pit dug into the floor—was circular on plan, with a diameter of 2 ft. 6 in. and depth of 1 ft. 7 in.; its sides were burnt red. Its contents comprised bichrome glass slag, lime and cow-dung, all found in abundant quantities one over the other. The colour of the glass slag and overburnt and twisted waste glass pieces was the same as that of the bangles found in the rest of the area.

Remains earlier than those of Period VI were not touched this season in Area A. The extensive chalcolithic remains of Period III in Mound B, spread over an area of over 1,00,000 sq. ft., were, however, taken up for excavation. The chalcolithic deposit here had an average thickness of 5 ft., representing five Phases of occupation. Though the Phases were clearly marked on the basis of the concentration of burials contained therein, they presented a uniform material culture.

The houses of the Period were evidenced by patches of floors made of rammed lime or clay mixed with fine gravel. The largest house, indicated by the extent of its lime-floor, measured 45 x 20 ft. Wooden posts, 3 in. in diameter, were sunk into the floors to support the roof, no remnants of which were, however, found in the excavation. Another contemporary

method of making floors was by the ramming of lumps of hydraulic lime which might have been the debris of a previous structure.

The walls were made of clay mixed with grass. Several lumps of wall-d6bris, burnt red, were found having impressions of clay-plastered wooden posts, as at Navdatoli.

The normal length of a room was 8 ft. and width 7 ft., though larger lime-plastered open areas also formed part of a house. No details of the interior of a house could be made out, except the existence of huge storage-jars, 4 ft. in diameter at the shoulder, with tapering bottoms and squat necks and with bold linear applied designs; they were sunk into the floor. In one room, a depression, 3 ft. in diameter, possibly indicated the position of a sunk shallow vessel, perhaps a large dough-plate.

Ovens, two of which were found, consisted of raised bands of clay, the gap between the two parallel arms being 2 ft. and the height of the arms 8 in. They were built right on the floor.

The pottery was generally stereotyped and consisted of the Jorwe Ware. This year, however, some new features were revealed. Besides the usual spouted pot with a flared mouth, carinated bowl, spouted bowl and globular pot in the Jorwe Ware (fig. 10) and coarse hand-made red ware and grey ware, a fairly large quantity of pottery, though basically similar to the Jorwe Ware in fabric, had a thick orange-to-red slip like the Malwa Ware. The monotony of the painted designs, mostly geometric, was relieved by a few lively animals, of which there were conventionalized examples as well (pl. XXVIII A-D).

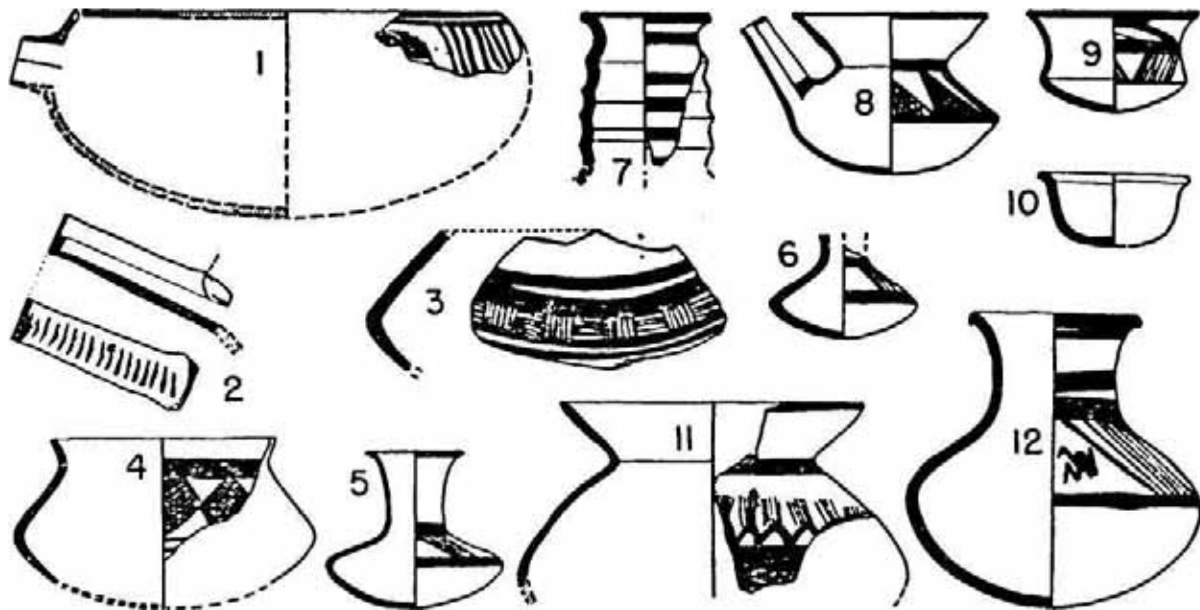


FIG. 10. ***Nevasa: Jorwe Ware (\)***

Certain significant deviations were noticed in the shapes of the carinated bowl. Un-like the relatively-unemphasized carination in the Jorwe bowl, a small bowl found this year had pronouncedly concave sides, resulting in a sharp carination at the waist and producing a shape reminiscent of the Ahar black-and-red bowl with white painting. Another bowl had high concave sides and a carination at the base—a shape met with at Navdatoli in cream ware and having typological affinities in Iran. The two shapes were important in that they showed central Indian contacts.

Of the sixtysix burials found this year (cf. pl. XXIX A), all but one belonged to Period III. Again, all except three were of children. The child-burials generally consisted of two urns kept face-to-face (pl. XXIX B) right on the floor of a house, mostly in a north-to-south and rarely in an east-to-west or north-east to south-west direction. Two burials were found completely empty; either they were of very young infants whose bones had withered away, or they were just symbolic burials. While generally the urns were grey, at least in seven cases either two globular pots in the Jorwe Ware or one pot in that Ware and another a grey urn were used. In one case, a single grey urn was laid vertically, and in another as many as five pots were utilized.

Of the three adult burials, one was without any funerary goods (pl. XXX A) The fully-extended body-that of a fully-grown male adult—lay directly on the floor with the head pointing towards the north but turned towards the west. The feet were missing. The body in another burial (pl. XXX B), also oriented north-to-south, was disturbed only the ribs arm, leg, vertebrae, skull and lower jaw being intact. It belonged to an adult female. The burial included five pots, of which four were grey urns with broken bottoms and the fifth covering the ribs, was in the Jorwe Ware. The skull was placed in an urn. As many as nine pots—spouted jars, carinated bowls and high-necked vases—were kept as grave-furniture.

Several of the other burials also were endowed with funerary goods such as small pots and beads. The latter were variously made of shell (pl. XXVIII E), agate, carnelian and copper. In one burial a copper bangle was found around the leg-bone of a child; the burial was very rich in pottery as well. The most remarkable find, however was that of a necklace of seventeen barrel-shaped copper beads strung with thread, worn round the neck of a child buried in urns. Dr. A. N. Gulati, who examined the thread, is of the opinion that it was of white silk, apparently spun from cocoons on a cotton nep. This is thus the earliest evidence of the use of silk in India. Further, the cotton nep indicates the spinning of cotton as well.

Dr. Gulati also found the presence of millet-cells and epidermal hairs, besides fungal spores, in the earth sticking to the copper beads. This, according to him, would indicate the use of cattle-dung in the burial-rite. In addition, he noticed the presence of oil-globules in the material surrounding the string. This might suggest the use of oil for anointing the body.

The microlithic industry showed a predominance of parallel-sided flakes alone with which occurred finely-retouched penknife blades, serrated blades, lunates and points Compared with the longer blades of Navdatoli, the Nevasa microliths were small though they belonged basically to the same blade-industry.

Polished celts and an adze (pl. XXXI A) were also recovered. They might have been manufactured locally, as at one place there were the remains of what might have been a fac tory, comprising anvils and partially-prepared tools.

The few copper objects included fish-hooks, wires and a bangle Two terracotta mother-goddess figurines (pl. XXXI B) were found. One of them was of large dimensions; its concave base might indicate its having been placed on a stand.

18. EXPLORATION IN DISTRICTS AHMADNAGAR AND NASIK -Dr H D Sankalia and Shri Z. D. Ansari of the Deccan College Post-graduate and Research Institute Poona, surveyed the valleys of the Godavari and Pravara in Ahmadnagar and Nasik Districts with a view to studying the terrace-formations on these rivers and their tributaries

The upper reaches of the Godavari, at Gangapur, Tapovan near Nasik Tamasvadi and Nandur-Madhmeswar, and of the Pravara, at Vite, Mehenduri, Induri and Akola exhibited fine vertical sections. At Vite, Mehenduri and Akola, a thick and extremely well-cemented deposit of angular rubble called shingle slips was found *in situ;* it contained

olive-coloured tools of Series I only. At all these sites, the rubble-deposit was capped by a thick deposit of yellowish silt, which was weathered to reddish-brown at Mehenduri and Akola and appeared to be the top of the earliest terrace, Terrace I, its height being 44 ft. at Vite and nearly 40 ft. at Induri. It was against this high cliff that the later deposits rested, as was well-indicated in a nullah upstream at Rajur beyond Vite on the Pravara, near Niphad on the Kadva and at Gangapur, Nasik and Nandur-Madhmeswar on the Godavari, where the cliff was nearly 66 ft. high. The second gravel, bearing tools of Series II and occasionally of Series I, lay like a, small terrace, Terrace II, against the cliff at Nandur-Madhmeswar, Tamasvadi, Belpandhri, Suregaon, Bhalgaon, all on the Godavari, and at Mehenduri on the Pravara. Nowhere could be seen the silt of the second aggradation, as at Maheswar. But at Induri a second terrace was recorded at a height of 22 ft. from the present water-level, and-similar terraces were observed at Vite, Nasik (near Tapovan) and Tamasvadi.

Almost everywhere the fringes of the topmost terrace, Terrace I, were covered by a loose *kankar*-gravel, with a large number of microlithic flakes and tools, generally of chalcedony. Thus, the terraces could be correlated with the industries as in the following table.

Terraces	*Composition*	*Industries*
I	Rubble and thick deposit of silt	Early Palaeolithic flakes, cleavers and handaxes
II	Cemented gravel	Middle Palaeolithic points, scrapers, etc.
Loose gravel-spread covering the fringes of Terrace I	*Kankar* and sandy gravel	Microliths

It may be mentioned that the cemented gravel, Terrace II, was also found to contain animal-fossils, regarded as Middle Pleistocene in date.

This observation helps in the understanding of the section at Locality V (Hathi well) at Nevasa, where the extremely well-cemented gravel forming a ledge at the mouth-end to the right of the nullah was probably the last phase of Gravel I. On it and against the silt was a plastered thick layer of Gravel II. The last aggradation consisting of loose *kankar*-gravel covered the top.

On the Godavari, a fresh section was exposed at Gangapur, about 5 miles upstream from Nasik, by a recent erosion. Here a large number of tools of Series I (fig. 11) consisting of all the types of cleavers, flakes, scrapers, choppers and chopping tools, together with a couple of highly-advanced Acheulian handaxes, were found *in situ* at the top of the lowermost reddish clay, at the junction of the clay and overlying gravel and in the gravel itself The tools though retaining their shape and flake-scars, were very brittle and were highly patinated. Exactly opposite this section was found a dolerite dyke. This explains why so many flakes and nodules of all sorts were found *in situ* in these deposits. It appears that Gangapur was a factory-site of tools of Series I.

In the course of his exploration in District Ahmadnagar, Shri B. P. Bopardikar of the South-western Circle of the Department found palaeoliths, including choppers cleavers and scrapers, at Vadnair, Tambhere, Pathre-khurd, Kamgar-budrukh and Kamgar-khas

At Chinchvihire, Tandulnair, Karajgaon, Chandegaon, Kesapur Ambi Amal-ner, Pimprivalan, Manjri, Vanjalpur, Rampur and Satral, all variously situated on the banks

of the Mula, Pravara or one of their tributaries, tools of Series II and microliths, mostly scrapers on chalcedony, jasper, chert and agate, were collected.

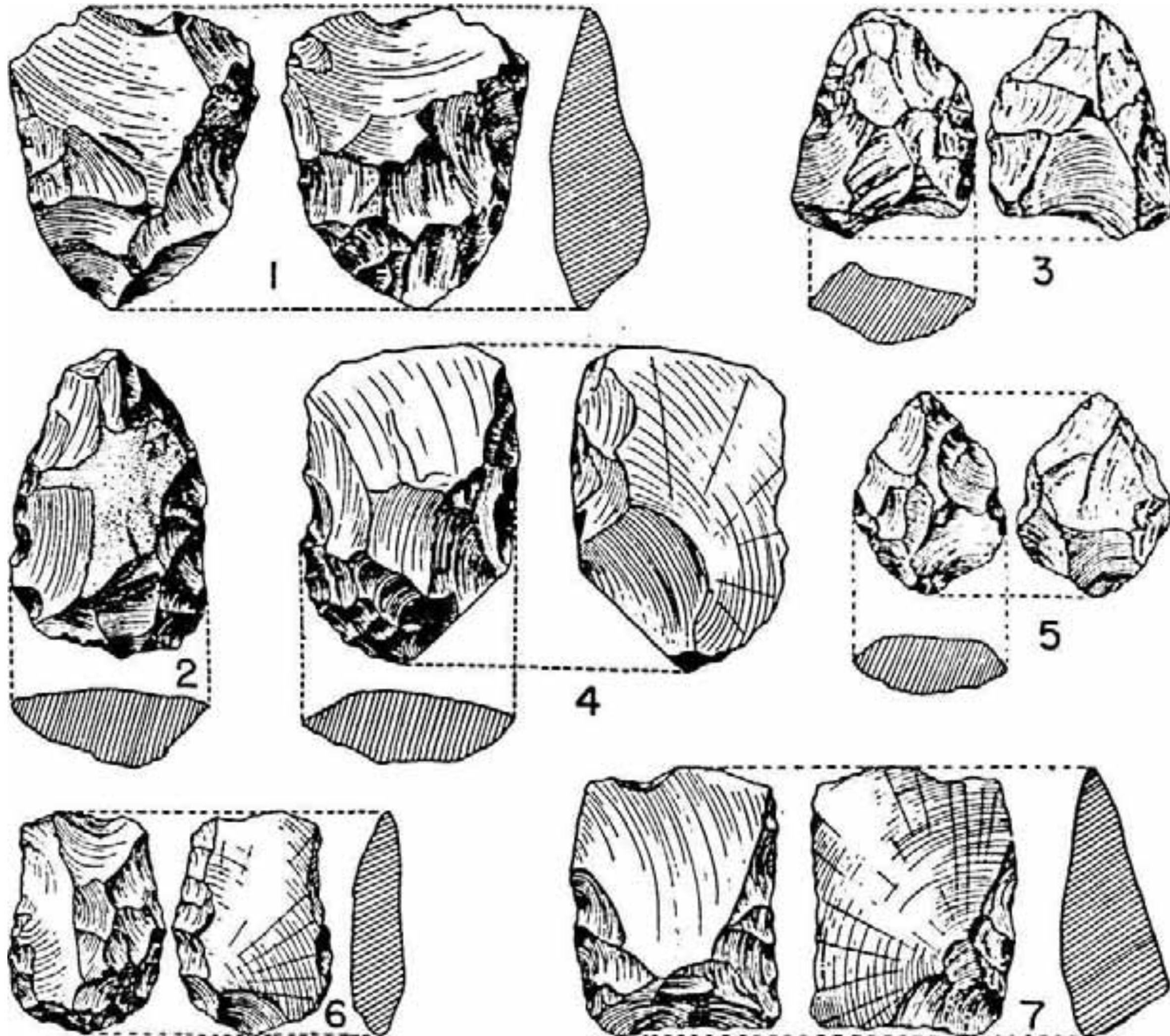


FIG. 11. *Gangapur: tools of Series I* (1/3)

Chalcolithic sites, with the black-painted red ware, were discovered on the banks of the same rivers at Deolali, Chincholi, Pimprivalan, Tilapur, Kapre, Pathre-khurd, Kolhar-khurd, Pimpalgaon-fungi, Satral, Khalshinde and Gangargaon, while microliths, also of the chalcolithic period, were collected at Rampur, Jatap,. Brahmangaon-bhand, Karajgaon Sheraswadgaon, Pimprivalan, Manjri, Chinch-vihire and Tandulnair.

Early historical sites, characterized by dull-red and black-slipped pottery, were discovered at Pimprivalan, Manjrikangar-budrukh, Manjrikangar-khurd, Deolali Tilapur Kopre, Pathre-khurd, Kolhar-khurd, Chincholi, Pimpalgaon-fungi, Songaon, Nimbhere, Kanadgon, Kesapur, Brahmangaon-bhand and Chandegaon.

Stone sculptures, variously representing Seshasayi-Vishnu, Lakshmi-Narayana and Varaha, of the Yadava times were discovered at Guvaha, Deolali, Kangar-budrukh and Kangar-khurd,

19. EXPLORATION IN DISTRICT CHANDA.—In continuation of the previous work (*1958-59*, p. 18), Shri L. K. Srinivasan of the South-eastern Circle of the Department dis-covered a number of palaeolithic sites, mostly in the region forming the basin of river Chi-mur, a tributary of the Wainganga. The sites were: Wagheda, Saradpar, Tekadipaiku, Kolara, Alijanja, Talodhi G., Kosambi, Khapri, Kitadi, Nandara, Mane-Mohali, Massala-Tukum, Masala-buzruk, Sonegaon, Adegaon, Mursa, Kurah and Chichpalli. At Wagheda, the palaeoliths included a massive chopper, a pebble handaxe, a bifacial handaxe and a sharp cleaver having encrustations of gravel and *kankar* (fig. 12). They were extracted from the sections of a nullah, at the bottom of a thick layer of alluvium and over a bed of cemented gravel. On the top of the black alluvium soil, forming the present surface, a number of tools belonging to Series II were picked up. The palaeoliths of the other sites were mostly collected from the surface. Except collections from Alijanja (fig. 13) and Kolara, consist-ing mostly of tools of Series II, the tools from the other sites were generally of Series I.

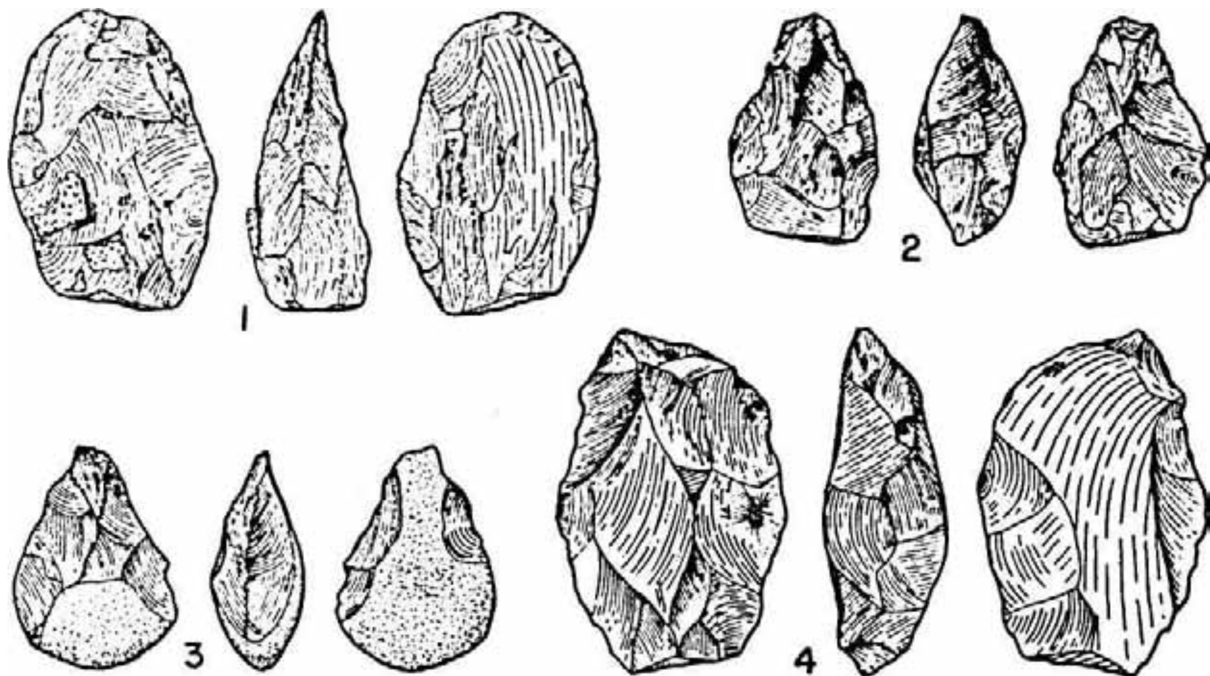


FIG. 12. ***Wagheda: tools of Series I*** **(1/4)**

Among the microlithic sites discovered by Shri Srinivasan, those at Chimur, Kawdi and Usegaon yielded scrapers, points, etc., in chalcedony, agate and carnelian.

Two important chalcolithic sites, one at Marda in Warora Tahsil and the other at Masalarith in Chanda Tahsil, were noticed by him. At Masalarith, painted sherds of the chalcolithic tradition, together with a number of microliths, were found. Amidst the pottery picked up at the other site, viz. Marda, was a sherd of buff or cream ware, with thick curvy lines painted in reddish brown. The site also yielded polished black-and-red ware of the same fabric, polish and type as is found at many sites on the eastern coast like Salihundam, Ghantasala and Amaravati, where some such sherds have rouletted designs.

20. EXPLORATION IN DISTRICTS NAGPUR AND WARDHA.—The Prehistory Branch of the Department, under Dr. R. V. Joshi, explored a few streams around Nagpur to gauge the Stone Age potentialities of the region. At the village Koradih, 10 miles north of

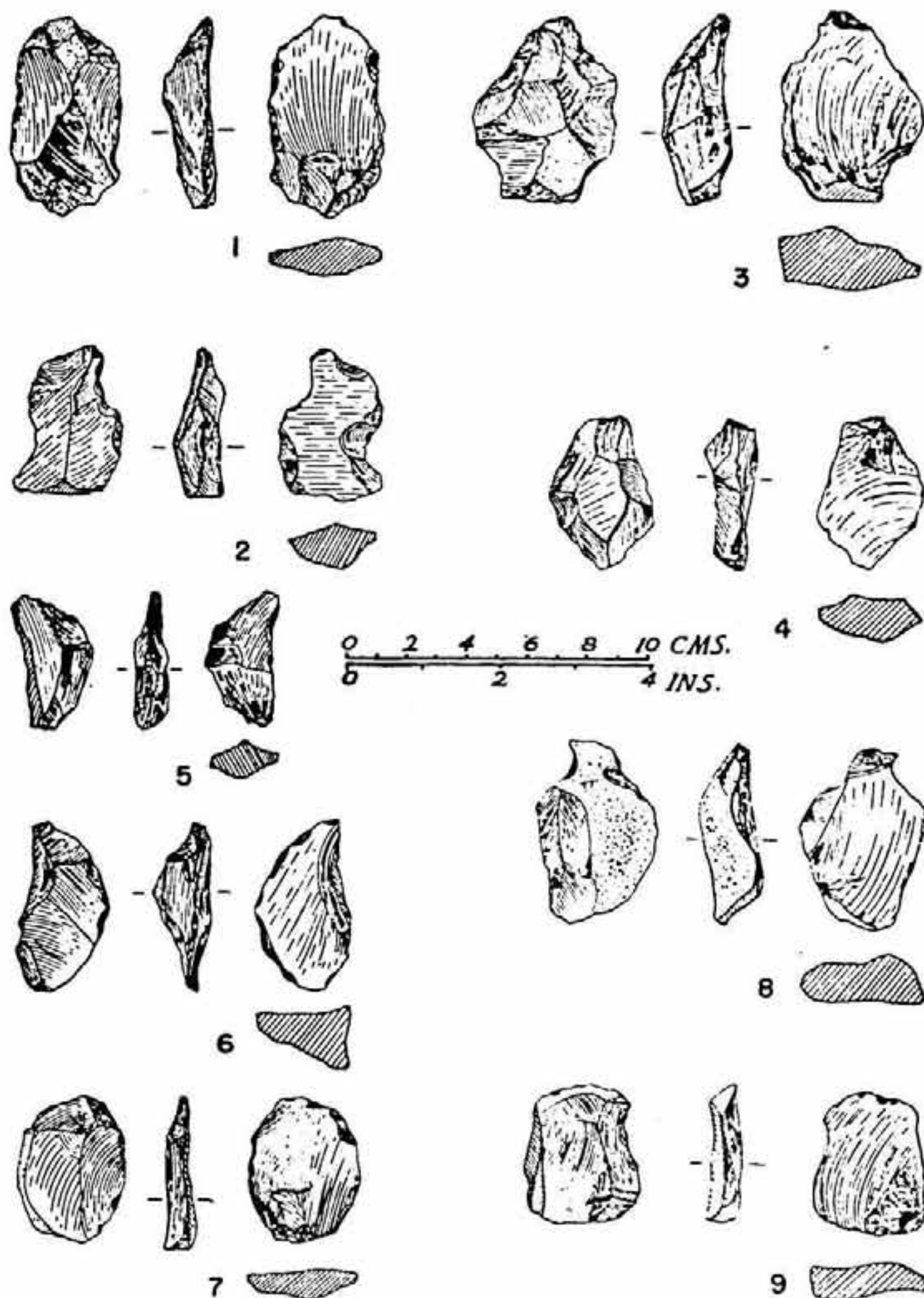


FIG. 13. *Alijanja: tools of Series II*

Nagpur near a Kali temple, a factory-site was discovered on the low-lying hill, where flakes and flake-blades with plain and narrow striking-platform were picked up.

Near the village Khaira on the Wuna river, also in Nagpur District, thirtyfive arte-facts of a scraper-flake-blade assemblage were found *in situ* in the cemented sandy gravel resting on the weathered Deccan trap. The tools were made of chert and consisted of scrapers, points, discoidal and tortoise cores and choppers.

In the region of the confluence of the rivers Wuna and Wardha, eight sites yielding tools of Series II were discovered They were Koudghat, Sivni, Kandhali, Galamb. Daroda, Pardi, Shaikapur and Patala, all in Wardha District.

Sections of the tool-bearing compact gravel were noticed at Pardi on the Wuna, and Galamb and Patala (pl. XXXII) on the Wardha, from the last of which a large number of artefacts were recovered *in situ.*

The section at Patala showed a lower coarse and cemented gravel at the water-level resting on the trap, which did not yield any tool. This was overlain by about 1 to 3 ft of reddish coarse silt or sandy silt, and over it was a very thick bed of fine-grained and well-cemented gravel, nearly 10 ft. in thickness. Over sixty tools of Series II were obtained from this gravel. The gravel was capped by brownish loamy soil, darker at the top than at the bottom. The collection consisted of thick blades retouched into side-scrapers and notched scrapers, crescent-like tools, borers, triangular points, leaf-shaped points with tang and a few discoidal cores, all made on chert (pl. XXXIII).

21. EXPLORATION IN DISTRICT WEST KHANDESH.—In the course of his survey of the middle and partly the upper reaches of the Ranka-nala, a tributary of the Tapti, bet-ween Kumbharpada and Umaj, Shri S. A. Sali of the South-western Circle of the Depart-ment brought to light an interesting sequence of lithic industries.

A highly-developed bifacial industry, chiefly on haematitic basalt and comprising late Acheulian handaxes, small discoids, scrapers, points and flakes, was located in a silty clay mixed with yellowish-brown ka*nkar*-nodules; it was found to rest on a weathered basalt, replaced by a bouldery gravel-conglomerate at the end of the upper reaches of the stream at Umaj.

A blade-flake-scraper industry of Series II, seemingly evolved from the earlier indus-try and consisting of fluted cores, broad blades and blade-flakes, burins, scrapers with a deli-cate retouch and points, occurred on the reddish-brown current or cross-bedded sandy gravel, overlying the first deposit. The industry was chiefly on haematitic basalt, but silicious rock-material, such as jasper and bloodstone, was also limitedly used.

The next upper deposit, a yellowish sandy silt with ka*nkar*-pellets, replaced at places by calcareous sand and brownish coarse sand, contained a microlithic industry, mainly on chalcedony, jasper and agate. It included fluted cores, slender blades and blade-flakes, burins and points.

No tool was found in the overlying black soil exposed in the cliff-sections examined on the Ranka-nala. At Umaj, however, microliths similar to those mentioned above were found in the soil in cultivated fields.

At Tokartala, a thin and roundish flake of bone, with unmistakable signs of work-ing on one face, was recovered from a deposit of sandy soil mixed with ka*nkar*-pellets, exposed in the sections of a recently-dug well close to the left bank of the Junwanicha-nala, a feeder of the Shivnad, which, in turn, is a tributary of the Tapti The stratigraphic hori-zon of the bone tool thus corresponded to that of the microlithic industry in the section of the Ranka-nala.

At Jaitana, fragmentary fossil-bones were obtained in association with microliths from the yellowish silt. Tools of Series II were also found *in situ in* the underlying

reddish-brown current-bedded gravel. A few palaeoliths were collected from Virehak and microliths from Nizampur.

An examination of the section of a well at Dahivel revealed the presence of palaeolithic tools, mostly on flakes of basaltic trap, in the chocolate-brown fissured clay and a couple of fragmentary fossil-bones in the underlying fairly-hardened massive deposit of calcareous gravelly sand intercalated with hard sheets of *kankar*. Besides, a fragment of a long mammalian bone was picked up.

Tools of Series II were collected at Jambhlipada on the Mangala-nala and at Ashta, Jharala-pada, Ghogal-pada and Virehak on the Shivnad.

Palaeolithic tools of haematitic basalt and hard basaltic trap were found in culti-vated fields, mostly within the black soil, at Kokni-pada,Pavla,Arditara,Nandarkha, Lakhmi-kheda, Umaj, Kaliamba, Mungrul, Vaslai, Bhangda, Ashta, Kesar-pada, Gandi and Kumbhar-pada. The first place yielded (i) deeply-patinated large and thick flakes of basaltic trap with high-angled striking-platforms as in Clactonian flakes, comparable with those from the lower basalt conglomerate of the Lower Group of De Terra and Paterson on the Narmada, (ii) a flat-based chopper on a Clactonian flake, (iii) a few handaxes, including one like a rostrocarinate and a pear-shaped *coup-de-poing* on a massive core, and (iv) a dozen Cores and flakes, ascribable, on typological grounds, to the Middle-Upper Palaeolithic. The tool-assemblage from the rest of the sites was divisible into two main groups : (i) late Acheulian handaxes and cleavers, discoids, flat cores with one of the faces fully-flaked, scrapers and flakes showing much primary flaking, and (ii) Upper Palaeolithic fluted cores, small discoids, blades and blade-flakes, delicately-retouched scrapers, points and burins.

Microliths of chalcedony, jasper and agate were collected from the fields at Kum-bhar-pada, Kokin-pada, Jambhli-pada, Lakhmi-kheda, Tokartala, Virehak, Bandhar-pada, Songir-pada, Takli-pada, Nandarkha, Ashta, Ghogal-pada, Kevid-pada, Jalka, Bhiladi, Gujarpur, Pechribari-pada, Khamgaon, Veda-pada and Ghirasgaon. Except those collected at Ghirasgaon, Gujarpur and Area B of Khamgaon, which appeared to be of chalco-lithic affiliation, most of the microliths from the rest of the places could probably be regarded as mesolithic.

Chalcolithic burial-sites were noticed at Maindana, Jaitana, Ajanad Bungalow and Ghirasgaon and habitation-sites of the same age at Jaitana, Bhiljambholi and Amoda.

22. EXCAVATION AT BAHURUPA AND SAWALDA, DISTRICT WEST KHANDESH.— The exploration undertaken last year in the middle Tapti valley *(1958-59,* p. 22) between Prakash and Ukai had brought to light several sites with chalcolithic remains. Promising habitational deposits were, however, met with only at Bahurupa and Sawalda, situated respectively on the north and south banks of the Tapti in the vicinity of Prakash. Since this portion of the valley is to be submerged under the Ukai Dam Project, the sites at Bahurupa and Sawalda were taken up for excavation by the Prehistory Branch of the Department, under Dr. R. V. Joshi, assisted by Shri K. M. Srivastava and Shri S. P. Jain.

The occupational deposit encountered in the two small trenches at Bahurupa was found to be hardly more than 11/2 ft. in depth, and even this shallow deposit was found dis-turbed by huge pits. The excavation yielded the typical chalcolithic painted ware (fig. 14), the designs being executed in black, purple or chocolate over a red or brownish surface. Amongst the common designs were the hatched diamonds and triangles, horizontal bands, vertical and horizontal strokes, wavy lines, intersecting oblique lines enclosed by a hori-zontal band, loops and animal- and fish-motifis. The most interesting painting represented a wild animal with erect hair on the back, chasing another animal, only the tail of which was extant (fig. 14,*10)*. The red ware was represented by the shallow dish with a bevelled rim, high-necked jar and lid. Certain decorated patterns, like wavy lines and herring-bone,

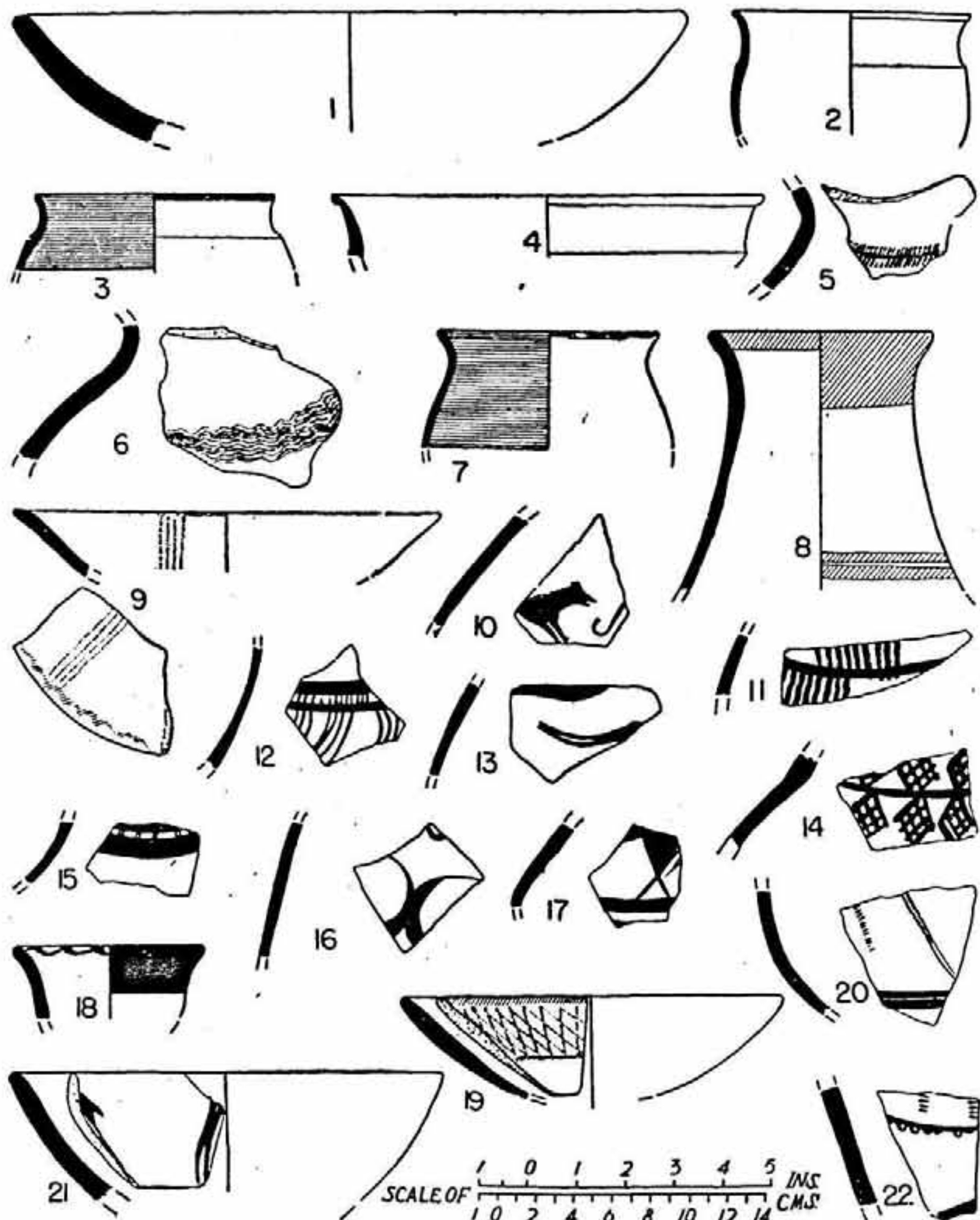


FIG. 14. *Bahurupa: chalcolithic pottery*

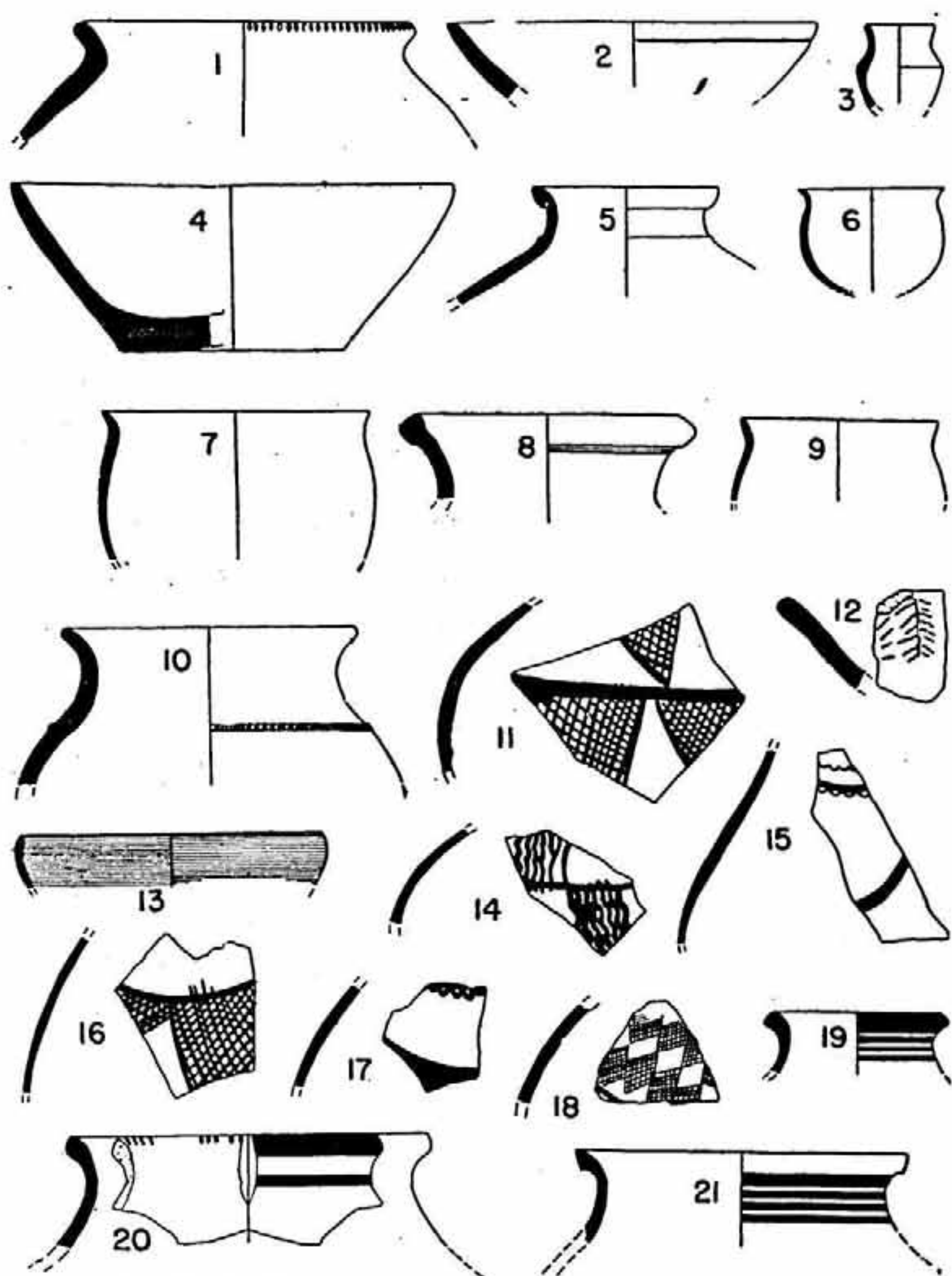


FIG. 15. *Sawalda: 1-7, 9-12 and 14-21, Period I; 8 and 13, Period II.* (¼)

resembled those of Rangpur III. The paring-technique was very popular on burnished grey and black wares. Mixed up with all this was a variety of black-and-grey ware (fig. 14, *3)*, sometimes internally painted with vertical strokes or dots, comparing very well with the earliest ware of Ahar.

The few microliths on agate and chalcedony obtained from the excavation consisted of micro-blade cores, parallel-sided blades, tiny backed blades, crescents and awl-points (pl. XXXIV A). Bahurupa appears to have been a factory-site for the manufacture of microliths in view of the large number of microliths, comprising a variety of fluted cores, simple and retouched blades, points, etc., and nodules and flakes of chalcedony and agate, along with other siliceous material, lying scattered on the surface.

At Sawalda, the occupational debris, about 12 ft. thick (pl. XXXIV B*)*, was less disturbed. On an assessment of the excavated material, two Periods, respectively compar-able with Prakash I and II, could be established. Period I was characterized by a red ware of medium fabric, coarse grey ware, both in rough and in fine fabrics, and the typical chalco-lithic black-painted red ware (fig. 15), accompanied by a few microlithic blades on chalce-dony. The jar with a bevelled rim, jar with a beaded rim and flanged shoulder, storage-jar with a splayed-out rim and cordoned shoulder decorated with cord-pattern, jar with a beaked rim and miniature jar with a splayed-out rim and carinated shoulder were some of the important types in the red ware. The painted designs consisted of horizontal bands, hatched diamonds and triangles, loops, circles and parallel wavy lines connected to a horizontal band. The coarser variety of grey ware was represented by the shallow dish with a feature-less rim. storage-jar with a splayed-out rim and carinated shoulder decorated with cord-pattern and the thick and deep bowl with an incurved rim and flat base. The finer variety of the same ware, included the characteristic chalcolithic jar with a flaring rim and globular body. Some of the pieces had a black interior. A few specimens with paring-technique were noticeable in the red ware.

Period II was marked by the prevalence of black-and-red ware, black ware and other types associated with the Northern Black Polished Ware. The huge storage-jar and painted pottery of the preceding Period were conspicuously absent.

MYSORE

23. EXPLORATION IN DISTRICT BUAPUR.—Shri A. Sundara of the South-western Circle of the Department discovered chalcolithic sites, mostly with the typical grey ware of Brahmagiri, a smaller number of black-painted red ware and microliths of chert, includ-ing fluted cores, blades and flakes, as also fragmentary hammerstones and polished stone axes, at Balganur, Padeknur, Vanhalli, Lingadhalli, Belvad, Chokavi, Gadisommal, Navadagi, Hirur, Hoshalli, Gotkhindki, Bhantnur, Lakkundi, Karognur, Tumgi, Almel, Gundigi, Kumshi, Baglur, Nandgeri, Sungthan, Khainpur, Bankalgi, Moratgi, Huvinhalll and Ghandliavate.

At Kumshi the Black-and-red Ware was also found, while Goravgundagi, Sungthan and Bankotgi had early historical sites.

Sculptures and ruins of temples of the medieval period were discovered at Hirur, Bamanhalli, Navadgi, Gudihal, Pirapur, Karaganur, Shirshagi, Devar, Navadgi, Kumshi, Aheri, Gabsavalgi, Yargad-budrukh, Kcrur, Kunekumatgi, Kakkalmali, Malghan, Asangi-hal, Sindgi, Bandal, Balashvare, Gavihar, Gankatgi and Rampur.

24. EXPLORATION IN DISTRICT DHARWAR.—Shri M. S. Nagaraja Rao of the South-western Circle of the Department collected a few palaeoliths of the Acheulian type

at Channapur, Taluka Ranibennur. Besides, he discovered chalcolithic sites at Hadargcri, Mudenur, Asundi and Kunber. The site at Hadargeri yielded the thick and coarse grey ware of Brahmagiri, a few black-painted red sherds and fifteen polished stone axes. At Asundi only the grey ware was found, while Mudenur had polished stone axes along with the grey ware.

Stone circles, with the typical Black-and-red Ware, were noticed at Budapanahalli, Asundi, Kushur, Kotihal and Malkanhalli. The first site had as many as one hundred and fifty stone circles.

Early historical sites, with the characteristic Russet-coated Painted Ware and Black-and-red Ware and a dull-red ware were discovered at Fatepur, Nitpalli, Kotihal, Holi-Anveri, Mudnur, Medleri, Chandapur, Chandanpur, Kuli, Chikmagnur, Godihal, Kuppe-lur, Mudenur, Dombarahalli, Ukkund, Benkankonda, Kuskur and Dandgihalli.

25. EXCAVATION AT T. NARASIPUR, DISTRICT MYSORE.—The Department of Archaeology, Government of Mysore, continued its excavation at T. Narasipur (*1958-59,* p. 33).

The megalithic culture, characterized by both red and black polished wares (pl. XXXV), was preceded at the site by a chalcolithic culture, in the deposits of which there was a fragment of the Jorwe Ware.

Burnished grey pottery (pl. XXXVI A) was recovered in large quantities from the lowest, i.e. neolithic, layers, which also had a coarse grey thick ware with simple incised designs like crossed straight or oblique lines or herring-bone.

On the bank of the river adjoining the site, a number of flakes of jasper and quartz and a few tools of Series II (pl. XXXVI B) were picked up.

ORISSA

26. EXCAVATION AT RATNAGIRI, DISTRICT CUTTACK.—In continuation of the previous year's work (1958-59, p. 33), the Eastern Circle of the Department, under Shrimati D. Mitra, resumed excavation of the Buddhist remains at Ratnagiri. It. was noticed that the foundation-brickwork of the walls on the rear side-of Monastery 1 was solidly built, especially at places where the walls were located on the slope of the hill, quite above the bed-rock. The maximum depth of the brickwork, including the footings (pl. XXXVII), at such places was 7 ft. 7 in. On the other hand, the foundations of the walls of the other three sides were inadequate: they generally consisted of a single narrow footing of three courses merging in an unbonded way into the second footing (from top) of the rear sides. The remaining space below the floor and the space below the front and side walls were compactly filled in at stages with boulders, large and small, stone chips and grits and earth with sherds, each stage being finished with tiny hard-rammed stone particles.

Monastery 2 was found to have been built over the ruined walls of an earlier monas-tery, utilized as the foundation at most places (pl. XXXVIII A). In the secret chamber of this earlier monastery (pl. XXXVIII B) were found a few bronze objects, including two images Below the south wing and the verandah of this earlier monastery ran, in a slightly different alignment, a still earlier monastery (pl. XXXIX A), of which only one wing, with the scanty remains of four cells, was found.

Near the south-eastern corner of Monastery 1, at a distance of 19 ft. towards the south-east, were unearthed the ruins of a small brick temple, consisting of a *sapta-ratha deul* (pl. XXXIX B) and a square *jagamohana,* the latter approached by a flight of stone steps (pl. XD Only the lowest moulding, *khura,* above the *upana* were extant in both. Even in the absence

of the superstructure, the existence of brick *bhumi-amlas* and bricks containing *chaitya*-window motifs left no room for doubt that the *deul* had been of the usual Orissan *rekha* order. The passage and. the floor of the shrine were paved with stones. Also of stone was the sill of the shrine-door, which had two sockets in the projection of the sill. The temple had already decayed before the foundation of the full-fledged establishment, a wall of which ran over the ruined top of the west wall of the *jagamohana*.

RAJASTHAN

27. EXPLORATION IN DISTRICTS BHILWARA, CHITORGARH, JODHPUR, PALI AND UDAIPUR.—Shri V. N. Mishra of the Deccan College Post-graduate and Research Institute, Poona, continued his exploration in Rajasthan (*1958-59,* p. 42). Most of the known sites were revisited for the collection of further implements and a stratigraphic check-up. In the valleys of the Luni and its tributaries in western Rajasthan several new palaeolithic sites were found. The rivers Banas, Jawai and Raipur-Luni were explored between Abu Road and Sarupganj, between Jalore and Sumerpur and between Nimaj and Raipur respectively, but no tools were noticed.

The stratigraphic sequence observed in the Luni and its tributaries was that of a white clay at the bottom, succeeded by a cemented sandy grave! which, in turn, was covered by a sandy silt. Though most of the tools were collected from the dry river-beds, their horizon was no doubt the cemented sandy gravel, which was not exposed at many places.

The implements from the Luni basin comprised scrapers, points, flakes and cores, ascribable to Series II. A large number of fluted cores and blades were found near Sojat in the limestone outerops, where the occurrence of tools of Series I and II had already been noted. The majority of the implements from this area was of flint, chert and jasper, which occur in the form of large nodules in the limestone outcrops of the Vindhyan sandstone, of which a chain of hills runs north-south from Bilara to Sojat.

In eastern Rajasthan, the river Banas was explored between Nathdwara and Kan-kroli and the Chandrabhaga between Lawa-Sardargarh and Amet on the Marwar-Maoli branch of the Western Railway, but no tools were found. Many tools were, however, found *in situ* in the cemented gravel at Sarupganj; here and at other places on the Banas a succes-sion of an implementiferous gravel at the bottom, covered by a thick deposit of silt, had been noticed last year. This year's observations on the Berach near Chitorgarh and on the Banas near Mandpia and Bigod showed the existence of one more gravel-deposit, seeming to rest against the silt of the earlier aggradational cycle. It did not show any noticeable difference either in composition or in tool-industry, except that it was less-highly cemented.

A number of microlithic sites were found in Districts Udaipur and Bhilwara. Several sites explored earlier (*1958-59,* p. 45) were revisited and collections made from them. All these sites were located in the hilly interior and seemed to be invariably connected with limestone outcrops, where nodules of cherty material of a very small size (1/2 to 2 in. in diameter) occurred. All of them appeared to be factory-sites. No stratigraphy of the micro-liths was available.

The following table (p. 40) gives District-wise the names of the sites, the river-valleys in which they are located and the Series of tools which were recovered. The sites marked with asterisks were previously known.

District	*Site*	*River-valley*	*Series of recovered tools*
Bhilwara	Bigod*	Banas	I
Do.	Mandpia	Do.	III
Do.	Mangrup*	Do.	III
Do.	Potla	Do.	III
Do.	Pur	Do.	III
Do.	Sand	Berach	I
Do.	Sarupganj	Banas	III
Chitorgarh	Chitorgarh*	Berach	I and III
Jodhpur	Bhetanda	Reria	II
Do.	Dundara	Luni	II
Do.	Golio	Do.	II
Do.	Hundgacin	Do.	II
Do.	Pipad	Jojri	II
Pali	Sojat	—	I. II and III
Udaipur	Bichri*	Berach	III
Do.	Bhuwana	Do.	III
Do.	Dabok*	Do.	I
Do.	Gadha*	Do.	III
Do.	Hiaro	Do.	HI
Do.	Jagannathpur	Do.	III
Do.	Karanpur*	Do.	III
Do.	Khcri	An anonymous tributary of the Berach	I
Do.	Mander*	Berach	HI

28. EXCAVATION AT GILUND, DISTRICT UDAIPUR.—In connexion with the train-ing of its students, the School of Archaeology, under Shri B.B. Lal and with assistance from the Exploration Branch of the Department, carried out excavation at the unnamed ancient site (recorded as Bhagwanpura in *1957-58,* p. 45) in the vicinity of Gilund, a large-sized village about 45 miles north-east of Udaipur as the crow flies.

Located about a mile, off the right bank of the Banas, which river accounts, today as in antiquity, for a large number of settlements in its wide valley, the ancient site near Gilund, covering an area of about 500 x 250 yds., is broadly divisible into two promi-nent mounds, eastern and western, rising respectively to the heights of about 45 and 25 ft. above the surrounding fields. Between the two mounds one sees a depression with a low east-west medial ridge dividing the drainage respectively to the north and south. Whe-ther this depression is merely the result of erosion in the course of time or it denotes that the two mounds were even initially separate blocks, signifying something, is difficult to say without an excavation of the intermediary area. But the excavation at the two mounds did reveal two facts, viz. both the mounds had been under occupation right from the beginning and it was only the eastern mound which was occupied during later periods, which fact, incidentally, also explains its extra height.

Excavation was carried out in three different areas, called respectively GLD-1 and its extension GLD-1A, GLD-2 and GLD-3. Of these, GLD-1 and GLD-1A, measuring 120 x 33 ft. and 216 x 13 ft. (only half the width being excavated), were laid, in an L-form, respectively along the top and down the slope of the eastern mound, so as to provide a complete cross-section of the strata right up to the peripheral region (pl. XLI A). In GLD-2 and GLD-3, located respectively on the northern and southern fringes of the western mound, area-excavation was undertaken, fourteen and six 20-ft. squares being opened up respec-tively.

As already stated, the western mound was occupied only during the earlier Period, which was chalcolithic in character, as indicated by the presence of microliths, a few bits of copper and the typical painted black-and-red ware. The other ceramic industries of the Period included plain and painted black, burnished grey and red wares. Besides, there were a few specimens of the black-on-cream and black-on-red wares in the upper levels and of a polychrome ware (black, bright-red and white paint on red background, pl. XLIV A, *3)* from the lower levels. The commoner types in the black-and-red ware, which were also shared by the black ware, were the bowl and dish, bearing designs in creamish-white pigment on either the exterior or interior or both (fig. 16, *1* and 2; pl. XLIV B.). The motifs included groups of dashes or of wavy or straight lines, the last being placed either vertically or obliquely in zigzags, opposing groups of concentric arcs, cross-hatched lozenges either in a continuous row or in groups separated by sets of vertical lines, etc. Amongst the designs in the black-on-red ware attention may be drawn to a row of cross-hatched lozenges (pl. XLIV A, *4),* while in the black-on-cream ware are to be chiefly noted the motifs of a dancing(?)-figure (pl. XLIV A, *2)* and an animal (?) with a stippled body (pl. XLIV A, 1). Besides paintings, the pottery-decoration included incised designs such as leaves, cross-hatchings, etc. (pl. XLIV A. *5* and *6).* Amongst other noteworthy ceramic shapes of the Period were the dish-on-stand in the red and black-on-red wares, the high-necked jar and basin with cut-spout in the red ware, the lipped (or lugged ?) basin and vase with strap-handle in the burnished grey ware, etc. (fig. 16).

Besides microliths and fragments of copper, already referred to, the small finds of the Period included terracotta animal figurines and gamesmen, beads, variously of terra-cotta, agate, chalcedony, steatite, etc., and sling-balls (?) and saddle-querns and rubbers of stone. Amongst the animal figurines attention may be drawn to the bull with a prominent hump and long horns, the legs being executed in the 'pinch'-technique (pl. XLV A, *4* and 5).

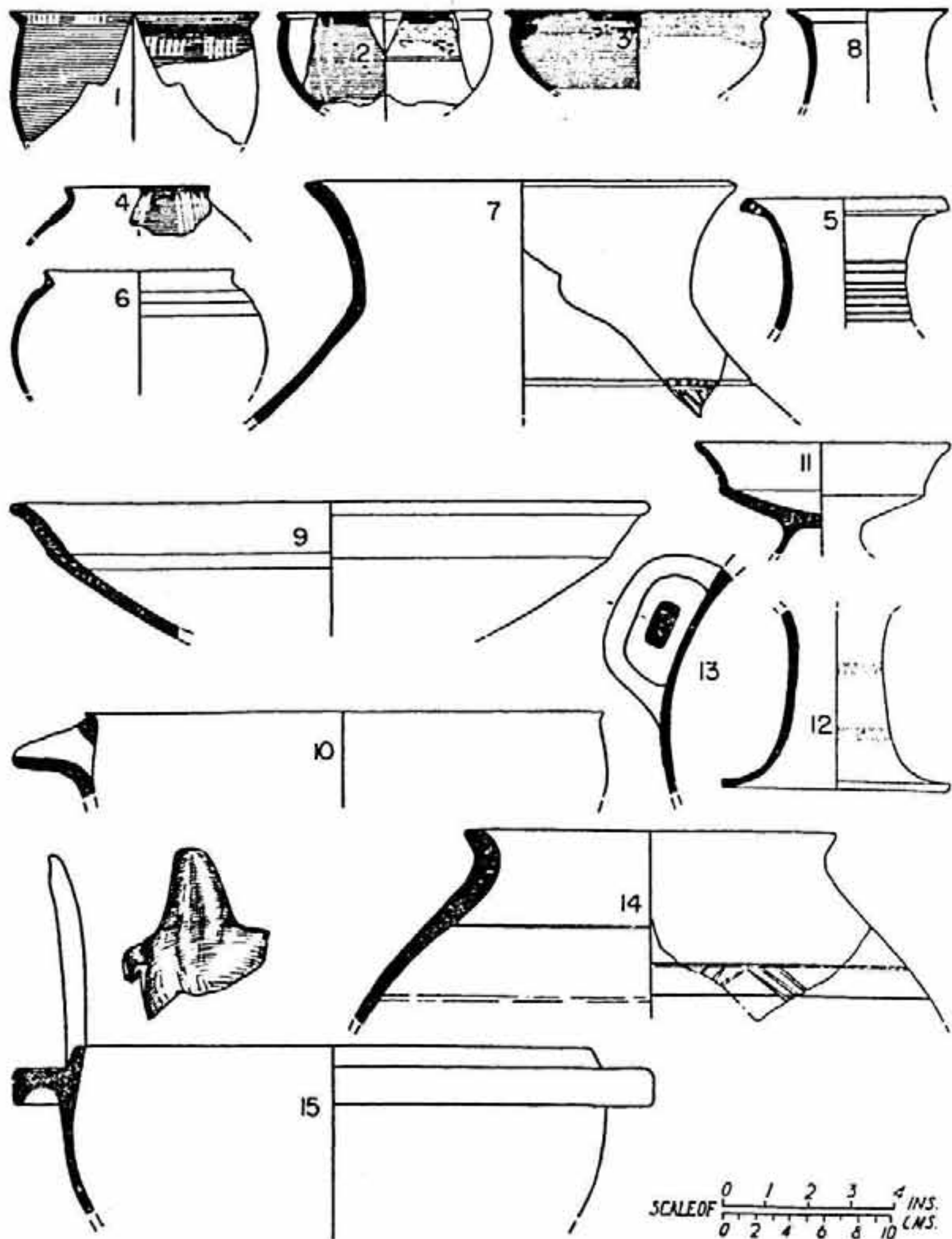


FIG. 16. *Gilund: pottery-types*

The gamesmen (pl. XLV A, *1-3)* were to be noted for the variety of heads, including one of ram (?).

In GLD-2, where a workable cross-section of the western mound was obtained, four structural Sub-periods, all ascribable to the chalcolithic culture, were noticed. Belonging to the earliest Sub-period was a structural complex covering, as far as exposed, an area of about 100 x 80 ft. It comprised four parallel north-south walls, joining, at the southern end, an east-west wall. Parallel to the latter were two more walls, from which, in turn, emerged another set of three parallel north-south walls. Made of mud-bricks (average size 13 x 5 x 4 in.) laid with mud-mortar in' alternate courses of headers and stretchers, the walls ranged in thickness from 2 ft. 6 in. to 3 ft. The space between the parallel walls, varying from 2 ft. 6 in. to 3 ft. 6 in. in width, was filled in with sand, while the inner face of the innermost wall and the outer face of one of the cross-walls were plastered with mud mixed with a small quantity of lime. Though considerably eroded (pl. XLI B), the extent and available height, about 6 ft., of the walls point to a formidable complex, the nature of which, however, cannot be correctly determined without further large-scale excavation of the area.

The second structural Sub-period was represented by a mud-brick house, in a corner of which was noticed a clay-lined pit, presumably used as an oven (pl. XLII A). The note-worthy feature of the third Sub-period was the presence of circular or oblong pits, of which as many as five examples were encountered. Varying from 3 ft. to 4 ft. 4 in. in diameter or major axis and having an average depth of 2 ft., the pits were lined with an 1/2-in. to l 1/2-in. thick layer of white clay mixed with sand. It is rather hazardous to make any definite suggestion as to use of these white-lined pits in the absence of relevant evidence, but some kind of storage would appear to be a reasonable guess.

The structures of the last Sub-period showed, as might be expected, a kind of dege-neration. Now they were made variously of large *kankar*-nodules and mud, mud-faced externally with stone rubble, mud and burnt brick-bats, and mud-bricks, the size of the last having changed to 11 x 6 x 3 1/2 in. Amongst other things of the Sub-period, noteworthy were white-washed earthen ovens (pl. XLV B), and zigzag finger-mark decorations on the plas-tered face of a mud-brick wall (pl. XLII B). On the nature of the roof, evidence was available in 1-to 1 1/2 in. thick chunks of rammed reddish earth, scattered all over the area, having one (upper) surface plain and the other (lower) with impressions of reeds and split bamboos. In GLD-3, even within the lower two-thirds of the mound that could be excavated, four structural Sub-periods were noticed, indicating that, at least in this part of the site, there were more structural Sub-periods within the chalcolithic period than what was evidenced for in GLD-2. While the general nature of the structures here was the same as in GLD-2, particular attention was drawn by a complex ascribable to the middle levels. As far as excavated, it consisted of a main wall, running west-east and then turning north-north-east, with a cross-wall on the inner side and a parallel wall, following the alignment of the main wall, on the exterior. Made of kiln-burnt bricks (size 14 x 6 x 5 in.) over a stone-rubble foundation and having a width of 1 ft. 10 in., the main wall (including the return) was traced, without reaching the ends on either side, to a length of 36 ft. It had a hard reddish plaster, about an inch in thickness, consisting of sand and clay mixed with 15 per cent of lime. The cross-wall on the interior, measuring only 1 ft. 2 in. in width, was traced to a length of 7 ft. 6 in. The outer wall, running parallel to the main wall at a distance of 4 ft. 6 in., was marked by two openings, one of which, measuring 3 ft. in width, provided entry into the complex in the form of a downward earthen ramp consolidated with rubble-pitching (pl. XLIII). The other opening was not fully excavated, but it seemed to follow the general pattern of the former. At three places along the main wall, near the junction of the main wall and the cross-wall and near the inner face of the outer wall close to the first-referred-to entrance were noticed charred remains of wooden posts (pl. XLIII). Contained within the complex

was a deposit, 8 in. to 1 ft. 6 in. thick, consisting of white clay and sand with a small amount of lime and showing evidence of sintering. Over it lay large chunks of consolidated reddish earth having an average thickness of 2i in. and a smooth upper and a bamboo-*cum*-reed-impressioned lower surface. These deposits were finally scaled by the debris of the walls themselves. While the available data would suggest some kind of a firing-arrangement in the complex, it would indeed be premature to make any categorical statement about it.

The complex was succeeded by a structure of mud-bricks with stone-rubble founda-tion (pl. XLIII), which, in turn, was followed by a Sub-period, of which the most noteworthy feature was the presence of a circular pit, the diameter and depth being 9 ft. 6 in. and 2 ft. 6 in. respectively. It was lined with a 1/2-in. thick plaster of white clay and sand mixed with an appreciable proportion of vegetable-fibre.

Nothing can be said in absolute terms about the chronology of the chalcolithic levels of Gilund. It may not be, however, irrelevant to attempt a correlation between Gilund and Navdatoli, as the chalcolithic levels at the latter site have already been dated by radio-carbon tests to *circa* 1500-1000 B.C. In the first place, the painted black-and-red ware occurs throughout the chalcolithic levels at Gilund but is staled to be confined mostly to the lowermost layers of Period III (chalcolithic) at Navdatoli. Secondly, the cream-slipped ware, bearing typical designs like the dancing-figure, spotted animal, etc., in black or purplish black colour, is 'restricted to the lower levels' (of the chalcolithic period) at Navdatoli, whereas at Gilund it has been found so far in the uppermost levels only. This disposition of these two wares at the two sites would indicate that the upper levels of the chalcolithic period at Gilund may broadly be contemporary with the lower levels of the corresponding period at Navdatoli. If that is so, the chalcolithic period at Gilund may roughly be placed during the couple of centuries on either side of 1500 B.C.

Trench GLD-1 was dug to a maximum depth of 7 ft.; within it four structural Sub-periods were noticed, which, on ceramic evidence, could be placed broadly in the second half of the first millennium A.D. The uppermost Sub-period was represented mostly by stone-rubble foundations, the superstructure having disappeared in the course of time, while the Sub-period below it was marked by several, rooms, oriented roughly east-west and north-south, the wall being made of mud-bricks (size 16 x 9 x 23/4 in.) over stone-rubble foundations. Within two of the rooms were observed clay-lined, circular or U-shaped ovens. Amongst the structures of the third Sub-period from the top, particular attention was drawn by one, made of dressed stones, roughly circular on plan, the diameter being about 8 ft. Belonging to' the lowermost Sub-period was a complex, including a platform, made of kiln-burnt bricks.

Trench GLD-1 A, located on the slope, presented, as far as excavated, only a step-like picture. Thus, while its upper part revealed structures which could be correlated to the early medieval structures of GLD-1, already referred to above, the middle portion brought to light structures which could be assigned to a few centuries before and after the Christian era, and the lowermost portion clearly unfolded the chalcolithic strata. However, as the trenches in the upper and middle parts could not be carried down to the chalcolithic levels owing to lack of time, the picture remained incomplete, particularly in regard to the continuity or otherwise of the occupation.

The chalcolithic levels here were marked by the same kind of pottery, structures etc as in GLD-2 and GLD-3, while the post-chalcolithic deposits yielded, from bottom upwards, the following characteristic ceramics: the bowl and dish in grey ware (a grey-ware bowl-fragment bearing a thin band in black along the rim was found on the surface); the 'Sunga' and 'Kushan' bowls in red ware; the sprinkler in red-slipped ware; the bowl in 'Kaoline Ware'; the knife-edged bowl in red ware; etc. Of these, the ‘Kaoline Ware’ deserves special atten-tion, as, so far, it has been reported from one more site only in Rajasthan, viz. Sambhar,

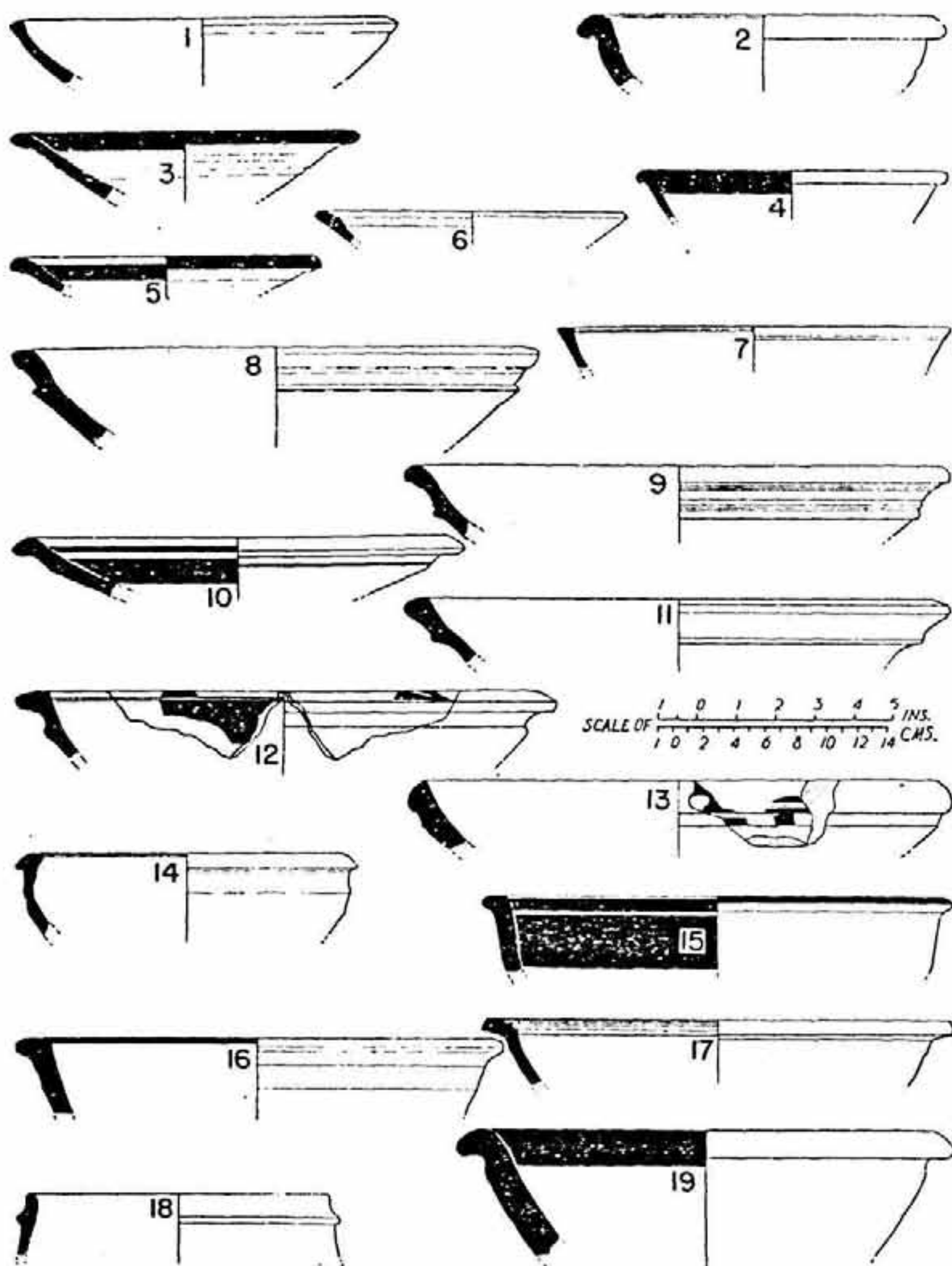


FIG. 17. *Pottery-types. Unchadih: 1, 4, 7, 14, 17 and 18; Onaur: 2, 3, 5, 6, 8-13, 15 and 19; Sarainkalu: 16*

Amongst the other finds of the early medieval period, particular mention may be made of a potsherd inscribed in characters of *circa* ninth century A.D., and terracotta moulds, one of which depicts a warrior with a sword and a shield (pl. XLVI).

UTTAR PRADESH

29. EXPLORATION IN DISTRICT ALLAHABAD.—Shri G. R. Sharma of the University of Allahabad explored a number of sites, viz. Achhola, Onaur (to which his attention had been drawn by Shri Braj Behari of the same University), Sarainkala, Unchadih and Upraura, all situated between 20 and 30 miles east of Allahabad.

Of them, Onaur and Unchadih had extensive traces of ancient habitation. Onaur was about 1 mile square. Subsequent to the desertion of the site, the Ganga, on the bank of which it is situated, considerably changed its course, forming two flood-terraces. A third terrace is now in the process of formation.

Unchadih had clear traces of a fortified habitation, 170 x 110 ft., with corner-towers —a small-scale replica of Kausambi. The rampart was 30 ft. in height and was brick-faced on the outer side. There were signs of a moat, about 25 ft. wide, with watch-towers on its outer side.

The pottery from these sites was interesting. Achhola, Unchadih and Upraura had grey ware with painting, of the same type as Kausambi.

The other types from Onaur, Sarainkala and Unchadih (figs. 17 and 18; pl. XLVII) included the bowl with a square, everted or clubbed rim, dish, basin, lid, cooking-vessel, some of them with a marked carination, and dough-plate. The pottery was sturdy in fabric and had sometimes painted or incised designs. Some of the types were identical with those associated with the early periodsof the defences of Kausambi.

30. EXCAVATION AT KAUSAMBI, DISTRICT ALLAHABAD.—The University of Allahabad continued the excavation of Kausambi (*1958-59,* p. 46) under Shri G. R. Sharma. The inner side of the defences was taken up this year for excavation with a view to correlating the rampart and its ancillary structures with the habitation-levels within the city.

Notwithstanding its limited extent, the excavation partly confirmed the previously-revealed stratification of the rampart, particularly of Phases 2 and 3 thereof; there were no remnants of Phases 4 and 5 in the area due to denudation, and Phase I and the pre-rampart layers were not reached this year.

A wall, seemingly serving as a flank-wall and probably forming part of the gateway-complex, was exposed to a length of about 40 ft. (pls. XLVIII and XLIX A). The wall, with four associated floors and an equal number of floors below its foundation (pl. XLIX B), was rebuilt on the same foundation at least thrice subsequent to its initial construction in the middle of the period of the Northern Black Polished Ware.

31. EXPLORATION IN DISTRICT JHANSI.—In continuation of last year's work in Madhya Pradesh(*1958-59,* p. 26), the Prehistory Branch of the Department, under Dr. R. V. Joshi, explored the Betwa river beyond Jhansi between Deogarh and Moth, bringing to light haif-a-dozen sites with tools of Series II (pl. L). A few implements comprising handaxes and choppers on quartzite were also recovered from the loose river-gravels. Small patches of the gravel with tools of Series II were noticed here and there, but on the whole, the stratigraphic evidence was not very clear.

Shri Rameshwar Singh, of the Deccan College Post-graduate and Research Institute, Poona, explored the valley of the Shahzad, a tributary of the Betwa in District Jhansi (p. 21).

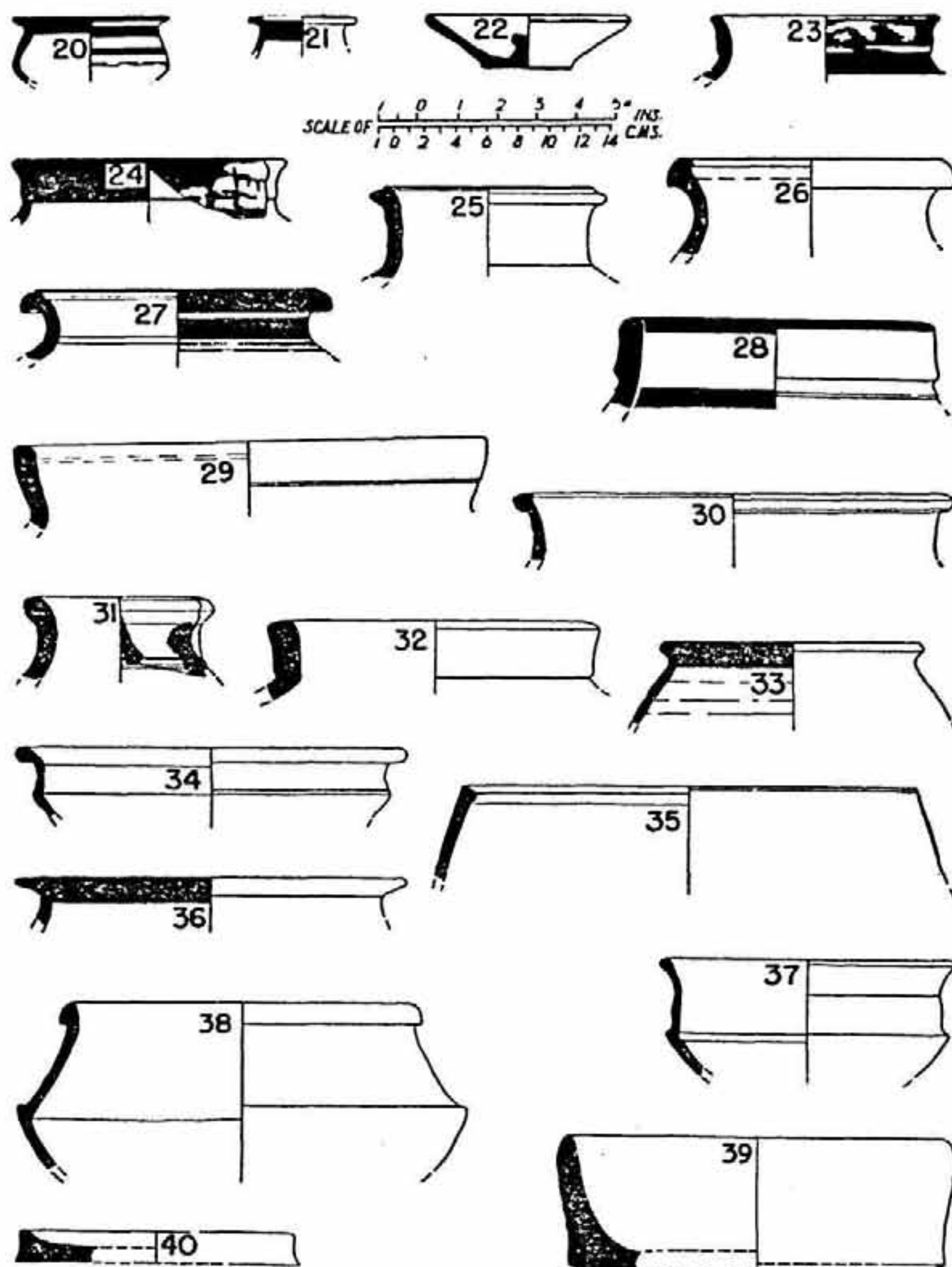


FIG. 18. *Pottery-types. Unchadih: 20, 26, 29, 31, 33 and 37; Onaur: 21-25, 27, 28, 30, 32, 34-36 and 38-40*

On the left bank of the river, at Rajghat, 12 miles from Lalitpur, he picked up a neolithic celt. An unfinished celt and a large number of dolerite pebbles, found scattered here, might indicate a factory-site. At Lalitpur, on the bank of the Shahzad, Shri Singh found cleavers and hand-axes in. a cemented gravel.

32. EXPLORATION IN DISTRICT MIRZAPUR.—Shri Radha Kant Varma, of the University of Allahabad, discovered a number of Stone Age sites in the course of his exploration in the southern part of District Mirzapur.

Shri Varma noticed a deposition of cemented gravel on the left bank of the river Son near the village Pataudh, opposite Chopan where a railway-bridge is being constructed. A few dolerite tools, largely of Series I, were found on the surface.

A palaeolithic site was discovered at Hathinala near the Forest Rest-house on the Robertsganj-Duddhi road. The tools, mostly picked up from the dry river-bed, comprised large flakes, scrapers and cleavers, but no handaxe.

A small area in the Singrauli basin, to be submerged as a result of the Rihand Dam, was also explored. A furlong up to the Rihand from the Gaharwargaon Ghat, where Cockburn had found a fossil tibia, a site with tools of Series I and II and microliths was located.

WEST BENGAL

33. EXPLORATION IN DISTRICTS BANKURA AND PURULIA.—The Exploration Branch of the Department, under Shri V. D. Krishnaswami, assisted by Shri K. M. Srivastava, Shri S. P. Jain and the students of the School of Archaeology of the Department, undertook an intensive exploration in parts of Districts Bankura and Purulia (fig. 19) along the river Kasai (Kangsabati) and its affluents Kumari and Jam, where about 40 square miles of land will be submerged under water as a sequel to the construction of a dam on the main river.

The exploration brought to light sites of different categories, viz. those with (i) tools of Series I (indicated in the following list by O), (ii) tools of Series I and microliths (OM), (iii) tools of Series II and microliths (TM), (iv) microliths (M), (v) neoliths and microliths (NM), (vi) microliths and historical remains (MH), (vii) tools of Series II, microliths and historical remains (TMH) and (viii) exclusively historical remains (H).

Following is the list of explored sites with the material recovered from each:

District Bankura: Ambikanagar (TMH), Dabra (M), Hatikheda (O) Chiada (OM), Puddih (M), Baddih (OM), Katakumari (M), Parasnath (TMH), Sarensarh (TM), Balarampur (M), Kutlubari (M), Kamarkuli (M), Budhpur (M), Chitgiri (MH), Gora-bari(M), Mukutmanipur(TM), Jhantipahari (M), Kurkutia (NM), Tuman (M), Satsol (M) Kendua (H). Loadi (H), L.utia (M). Maishamura (M). Bhedua (TM), Nilgiri (M), Barda (M)' Basantpur (TM), Kajalkura TM) and Uparson (O), not included in fig. 20.

District Purulia : Dharampur (M), Lalpur (M), Kishtapur (M), Bhanrarhia (OM), Ghat (M), Mirgichanda (MH), Rangamati (M), Palajor (M), Darasol'(M), Chhota Nunyani (M), Bara Nunyani (M), Ghugi-Jan (M), Dheka (M), Go barda (M), Koldiha (M), Khayerbani (M), Hirapur (M), Rasikdih (M), Kalupara (M), Puruldiha (M), Maheshpur (H), Ghat-Dungri (M), Goladal (M), Banskctia (M), Kantagora (M), Tentla (M), Bhengardih (M), Doldcnrya (M). Tila Bani (M), Basudih (M), Barcaiari (M), Mahulbana (M), Udaypur (M), Palasbani (M) and Akshaypur (M).

Gravel with palaeoliths was fairly widespread at Baddih, Hatikheda and Chiada parti-cularly in the horizon of the contour of about 450 ft. above mean sea-level, its thickness

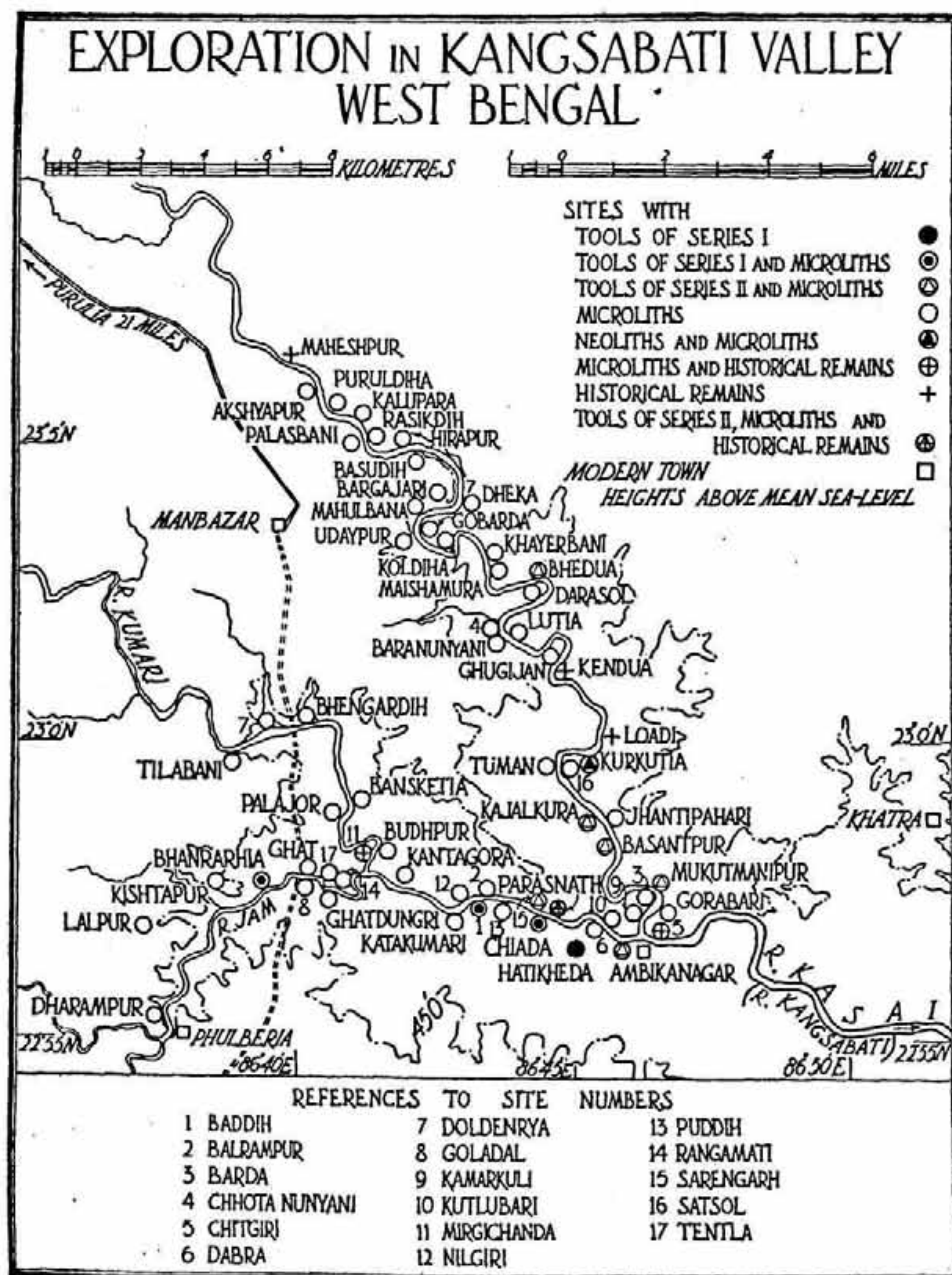

EXPLORATION IN KANGSABATI VALLEY
WEST BENGAL
KILOMETRES
MILES
SITES WITH
TOOLS OF SERIES I
TOOLS OF SERIES I AND MICROLITHS
TOOLS OF SERIES II AND MICROLITHS
MICROLITHS
NEOLITHS AND MICROLITHS
MICROLITHS AND HISTORICAL REMAINS
HISTORICAL REMAINS
TOOLS OF SERIES II, MICROLITHS AND HISTORICAL REMAINS
MODERN TOWN
HEIGHTS ABOVE MEAN SEA-LEVEL
PURULIA 21 MILES
MAHESHPUR
PURULDIHA
KALUPARA
RASIKDIH
AKSHYAPUR
PALASBANI
HIRAPUR
23°5'N
BASUDIH
BARGAJARI
DHEKA
MAHULBANA
GOBARDA
MANBAZAR
UDAYPUR
KHAYERBANI
KOLDIHA
BHEDUA
MAISHAMURA
DARASOL
LUTIA
BARANUNYANI
GHUGIJAN
KENDUA
R. KUMARI
BHENGARDIH
23°0'N
LOADI
TILABANI
TUMAN
KURKUTIA
BANSKETIA
PALAJOR
KAJALKURA
JHANTIPAHARI
KHATRA
BUDHPUR
BASANTPUR
BHANRARHIA
GHAT
KANTAGORA
MUKUTMANIPUR
KISHTAPUR
PARASNATH
GORABARI
LALPUR
R. JAM
GHATDUNGRI
KATAKUMARI
CHIADA
HATIKHEDA
AMBIKANAGAR
DHARAMPUR
PHULBERIA
R. KANGSABATI
R. KASAI
22°55'N
86°40'E
86°45'E
86°50'E
450
REFERENCES TO SITE NUMBERS
1 BADDIH
2 BALRAMPUR
3 BARDA
4 CHHOTA NUNYANI
5 CHITGIRI
6 DABRA
7 DOLDENRYA
8 GOLADAL
9 KAMARKULI
10 KUTLUBARI
11 MIRGICHANDA
12 NILGIRI
13 PUDDIH
14 RANGAMATI
15 SARENGARH
16 SATSOL
17 TENTLA

FIG. 19

being approximately 4 to 5 ft. The pebbles were of dyke quartzite stained red by iron oxide. It was also observed that the cementing-material in the gravel was arenaceous, also stained red by iron oxide as a result of capillary action. Artefacts, found at all the levels of the deposit, consisted mostly of handaxes, a few ovates and a scanty number of cleavers (pl. LI A) The handaxes showed the crude pebble-butt in general but were mostly flat due to the controlled flaking—an evolved technique The cleavers, on the other hand, were thicker and not so evolved. Special mention may be made of a unifacial chopper (pl. LI A, 7), found in a thick and extensive deposit about 30 miles lower down at Uparson close to Bankura, on both sides of the main road to Khatra.

Some of the tools of Series II (pl. LII A) showed two stages of working: the first stage showed orange-coloured patination with the flake-scars smudged off; in the second stage, the tools were devoid of any patination. But the material remained the same in both the cases. The find of a much-rolled core of Series II with microliths was significant. It appears that Series II passed imperceptibly into Series III, the latter of a finer technique. The microlithic blades were more parallel-sided and thinner. The geometries were indicated by trapezes, crescents and obliquely-blunted points (pl. LII B). The material was black flinty chert. and phyllitic schist, though other stones, like jasper, agate, quartz and chalcedony, were not altogether absent. All the tools were found at the junction of the red alluvium superimposing the Archaean bed-rock and the modern greyish loam. No pottery was associated with them.

Three neoliths were found at Kurkutia (pl. LI B), two of them, both tiny celts, characteristic of east India, being of particular interest. Both were completely smoothed and polished at the working-edge and were triangular in form, with a roughly oblong transverse section. The third neolith was reworked after use. The material in all the three cases was phyllitic schist.

Remains of the historical period, in the form of the plinths of temples, habitational structures and pottery, were noticed at several places. The temples were datable to *circa* twelfth-thirteenth centuries and were Jaina in affiliation, as evidenced by the sculptures of *tirthankaras* like Parsvanatha, Rishabhanatha, etc. Coarse red and grey pottery formed the bulk of the collection; the types comprised mostly the jar with a splayed-out, beaded and beaked rim, sometimes a carinated shoulder and sagger-base, the bowl with an incurved rim and the dish with a flattened rim. A suspected black-and-red ware sherd was found at Mirgichanda.

Almost all the sites mentioned above were full of iron slag, and some yielded iron nails.

The site of Parasnath. which possesses extensive plinths of temples and habitational structures, along with tools of Series II and III and neoliths (discovered in an earlier exploration), will have to be excavated on a large scale.

34. EXCAVATION ATCHANDRAKETUGARH, DISTRICT 24-PARGANAS.—Excavation at Ghandraketugarh was continued *(1958-59,* p. 55) this year by the Asutosh Museum of the University of Calcutta under the guidance of Shri K. G. Goswami. Work was undertaken both at Khanamihirer-dhipi, to the north of the Calcutta-Basirhat Road, and at the paddy-field known as Itkhola to the west of the Berachampa-Haroa Road.

At Khanamihirer-dhipi. the massive structure partially exposed in previous years was excavated to a greater extent on all the four sides. No cult-object was found to connect the colossal temple that it represented with any particular denomination. The central part of the northern side of the structure, though badly damaged, showed a platform attached to it by the side of the 4-ft. wide western wall of the vestibule. Another wall, 4 ft. 10 in. wide, built on a higher level but contemporary with the occupation of the temple, ran parallel to the eastern wall of the vestibule. It was established that both the eastern and western walls,

each 4 ft. wide, of the vestibule, 45 ft. square, attached to the north of the temple were structures of an earlier period (pl. LIII A). This was proved by the irregular joints of the walls of the vestibule near the main temple. Another significant fact was that the temple had in its core an earlier structure, 39 ft. square, its four sides and offsets built of rubbed bricks of irregular sizes (pl. LIII B). The later structure, 63 ft. square, projected over it by 12 ft. on each side.

On the basis of the finds the occupation of the area may be divided into seven Periods.

In Period I, probably assignable to the Maurya age, tiles, bamboos and wooden posts were used for building houses on mud-plinths. Chalcedony beads and miniature and large-sized pots were in use for domestic purposes.

In Period II occurred the Northern Black Polished Ware, black-and-red ware, beads of stones, etc. The building-material appears to have remained unaltered.

Period III, probably synchronizing with the Sunga period, was marked by the use of cast copper coins, awls and cosmetic sticks of bone and ivory, beads of carnelian and other stones, dice of bone, steatite caskets (pl. LI V) and various types of pottery, including the dish with a rounded base and externally-grooved rim. The building-material does not appear to have differed from that of the earlier Periods.

Period IV, probably falling within the Sunga-Kushan age, was remarkable for the use of cast copper coins, beads of glass and stones including chalcedony, dice of bone, shell bangles, terracotta female figurines with elaborate decorations, etc. A terracotta plaque containing a pair of parrots pecking a lotus-pod was an interesting find (pl. LIV). Also notable was the discovery of the Rouletted Ware (pl. LV A).

Period V, roughly of the Gupta period, saw the construction of the massive temple. This Period yielded terracotta plaques containing animal and erotic human figures, terracotta ear-studs and grey and black pottery, sometimes with stamped designs (pl. LIV).

Period VI, belonging to the late Gupta age, produced awls and gaming dice of bone, carnelian beads, pottery lamps, etc.

The layers, of Period VII, post-Gupta in date, were highly disturbed.

The excavation on the second site brought to light six occupational Periods. The destruction of the dwelling-houses of different "Periods had been due mainly to huge con-flagrations which left their mark everywhere.

The pottery of Period I was red and buff in colour and included a buff jar of coarse fabric, with a thick rim and with black slip on the exterior and upper part of the interior (fig. 20, /).

Period II was characterized by the free occurrence of fine specimens of the Northern Black Polished Ware. The other types were the dish with an incurved rim and convex base, the dish with an externally-grooved everted rim, bowl with a high neck, a unique pot, generally black, with a wide mouth, a nincurved rim, a short beak-like spout just below the rim, a tapering lower part and a flat base and pottery with stamped designs (pl. LV B). For the pottery of this Period, see fig. 20, *2-12).* Ivory bangles and beads were also found. The building-material probably included tiles, wooden posts, etc. On the whole, the Period may be ascribed to the early Mauryan age.

The Period was also remarkable for the discovery of a pottery drain, built of pipes, each measuring 2 ft. 3 in. in length and 61/2 in. in diameter. Some portions of the drain seemed to have been repaired by means of the broken upper parts of pottery jars of diffe-rent shapes and sizes. The fact that it did not continue for any great length would indicate that it did not serve the purpose of public sewerage.

Just to the cast of the end of the drain was an oblong area enclosed by vertical wooden planks supported by logs of wood with incised grooves for binding with cord. A reservoir, its sides of plank reinforced by logs of wood, was thus formed; probably the drain discharged itself into it. About 2 ft. 6 in. to the south of the structure was a long row of

wooden posts thickly joined with each other. The construction was probably meant as a pro-tective measure against soil-erosion, the soil at this level being extremely sandy.

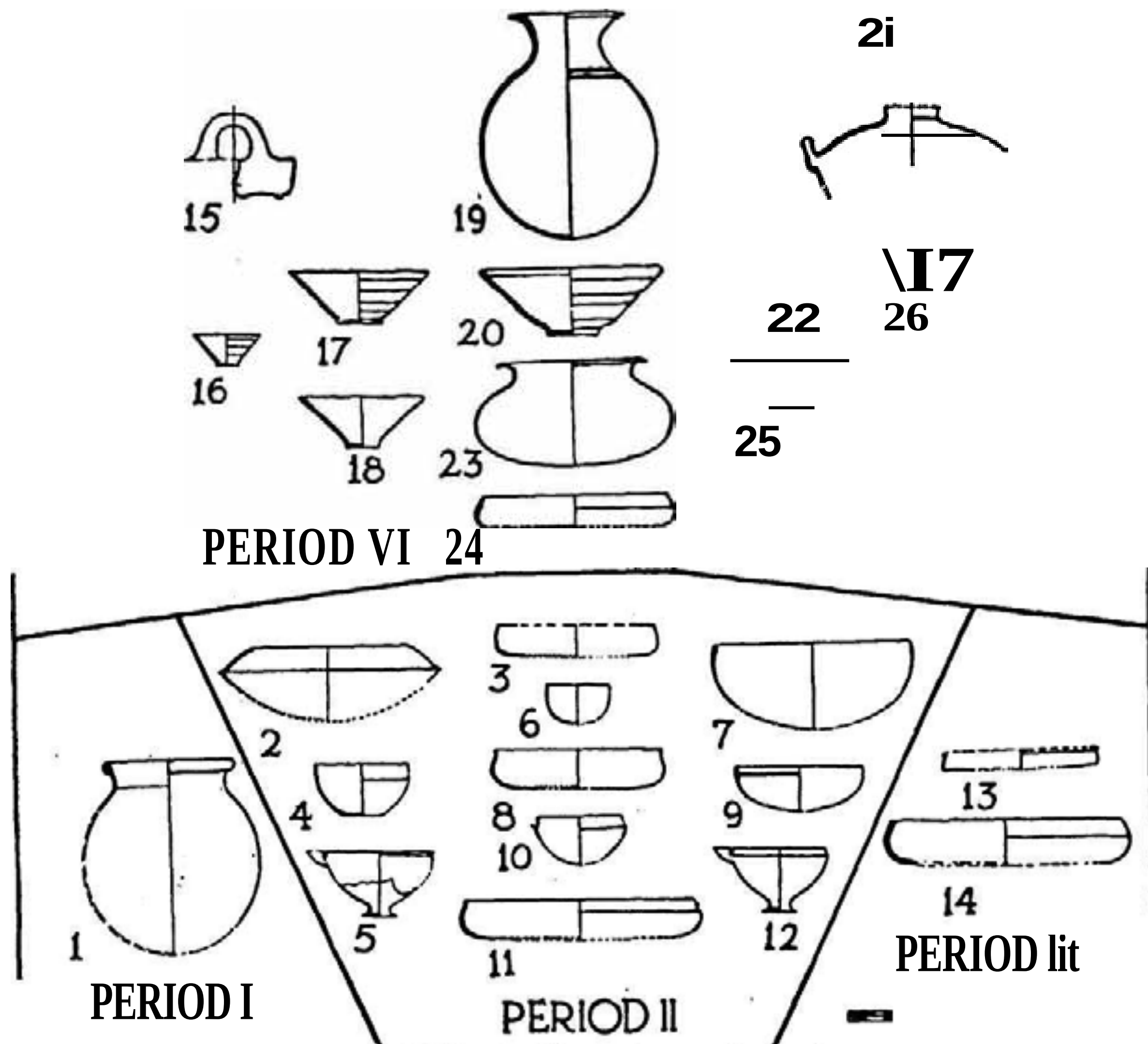


FIG. 20. *Chandraketugarh: pottery-types*

In Period III were found ivory cosmetic sticks, burnt stone beads, a plum-bob of copper and black-and-red ware (fig. 20, *13* and *14).*

Period IV yielded nothing remarkable but beads of different stones. A bone object of Period V had two or three letters in the Brahmi script of Sunga age (pl. LIV).

The layers of Period VI, probably falling within the Sunga-Kushan age, were some-what disturbed by cultivation. They yielded *mithuna* and female figures and bone beads.

A rubbish pit containing a large quantity of red pottery in various shapes and sizes came to light. The pots included bowls with wide mouths and small flat bases, some with exterior grooves, water-vessels with globular bodies, protruding rims and narrow necks, handled pans, spouted jars, dishes with incurved rims, cooking-vessels with prominently-flanged rims and carinated bodies, etc. (fig. 20, *15-26).*

III. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. RASHTRAKUTA INSCRIPTION, CHENNUR, DISTRICT ADILABAD.—Dated in Saka 863, Sarvari, in the reign of Akalavarsha, i.e. Krishna III (939-67), the inscription mentions Arikesari-arasa, a scion of the Chalukya family and a feudatory of the Rashtrakuta monarch, and registers the grant of an *agrahara* by Baddega, who was the son of Gunagarasa and is described as a Chalukya subordinate of Arikesarin.

2. EARLY CHALUKYA INSCRIPTIONS, IGADURU, NITTURU AND KOTTAPALLE, DISTRICT ANANTAPUR.—Dated in the fourteenth regnal year (A.D. 694) of king Vinayaditya Satyasraya, an inscription from Igaduru records a gift of land by a Bana feudatory ruling over Ganga-Renandu. Two other records, from Nitturu and Kottapalle, dated respectively in the second and third years of the reign of Vijayaditya Satyasraya (696-733), mention the Bana feudatory of the king as ruling over Vamguru-*vishaya*..

3. INSCRIPTION OF SIDDHIRAJU, VENKATAREDDIPALLE, DISTRICT ANANTAPUR. —Engraved in characters of about the ninth century, the inscription runs from the bottom of the slab upwards and refers to king Siddhiraju as born in Phanindra-*kula* (probably the Sinda family).

4. INSCRIPTIONS, AMARAVATI, DISTRICT GUNTUR.—Some of the inscriptions recently discovered at Amaravati, which can be assigned to the second or third century B.C. on palaeographical grounds, suggest that the celebrated Buddhist *stupa* of the place was originally built in that age. The most important among these epigraphs is a fragmentary record on a block of stone, which was apparently cut out from a pillar of the Asokan type, with traces of the original Mauryan polish. The palaeography, language, style and contents of this inscription suggest that it might be part of a yet-unknown pillar-edict of Asoka. It is not impossible that Asoka was responsible for the construction of the original *stupa.*

Engraved on a pillar recovered in the *stupa*-area, a fragmentary inscription mentions a chief of the *chaturtha-kula* (Sudra community) as a feudatory of king Rajendrachoda and records a gift of sheep for maintaining a perpetual lamp.

5. INSCRIPTIONS, NAGARJUNAKONDA, DISTRICT GUNTUR.-Of the Nagarjunakonda inscriptions of the Ikshvaku age (third and fourth centuries), three are of great importance, as they throw welcome light on the chronology and history of the Ikshyakus and also on the date of the Pallava conquest of Andhrapatha. These are: (i) an inscription of the Ikshvaku king Virapurushadatta, dated in the cyclic year Vijaya, apparently corresponding to

[1]Information from the Government Epigraphist for India about all items except the following: 25, the Superintendent, Central Circle, 38. the Superintendent. South-western Circle, and 48 and 51, the Superintendent, North-western Circle, of the Department; 27 and 23, the University ofSaugor; 40 and 42, the Director of Archaeology, Mysore State; and 45, 46 and 50, the Chief Superintendent of Archaeology and Museums, Rajasthan State.

A.D. 273-74; (ii) an inscription of Virapurushadatta's son and successor Ehuvula Chantamula, dated in the cyclic year Vijaya, apparently corresponding to A.D. 333-34; and (iii) an inscrip-tion of the Abhira king Vasushena, dated in the year 30, probably referable to the Abhira era (later known as the Kalachuri or Chedi era) of A.D. 248-49 and thus corresponding to A.D. 278-79. These records suggest that there was an Abhira interregnum in Ikshvaku history and that the Pallava conquest of Andhrapatha did not take place much earlier than the middle of the fourth century. They are among the earliest datable records discovered in south India.

6. INSCRIPTION, PRATAPAGIRI, DISTRICT KARIMNAGAR.—Engraved on a stone built into the wall of the main entrance of the fort in the village, the record states that Muchchanayaka, who bore epithets like *Gandagopala, Kanchiraksha-palaka, Chola-rajya-sthapanacharya, Pandya-mano-vibhala, Chera-mano-bhayankara,* etc., caused the fort to be built in the year Kilaka which, on palaeographical grounds, may be supposed to correspond to A.D. 1128.

7. INSCRIPTIONS, PURUSHOTTAPATNAM, DISTRICT KRISHNA.—One of the two records states that *Maha-mandalika* Bhimaya, son of *Maha-mandalika* Boddana and Lokama, had the temple of Kesava built at Gomturu in Saka 1055 (A.D. 1133). The other record, attributable to a slightly later date, mentions the son of Rudra and Mallamba, who is described as *SokaJa-senadhipati Mahasamanta Paltasahini* but whose name is lost, as the chief's *nija-rajya-bhara-dhaureyaka.* He seems to figure as a donor of some sheep for the supply of *ghee* to the temple of Brahmesvara-Mahadeva.

8. INSCRIPTION, POLUKALLU, DISTRICT KURNOOL.—Dated in Saka 1049 (A.D. 1127), this epigraph in Kannada registers a gift of land by *Maharajq* Rananissankamalla Rajendra Parakramaraya to the deity Somesvara of the village described as an *anadi-ghatika-sthana.*

9. INSCRIPTIONS, ALAMPUR, DISTRICT MAHBUBNAGAR.—Dated in Saka 635 (A.D. 713) in the reign of the Western Chalukya king Vijayaditya Satyasraya, one of the epigraphs is biscriptal, one version written in the Siddhamatrika script and the other in the Telugu-Kannada alphabet (pl. LVI A). It records the construction of an enclosure by a certain Isanacharya.

Another epigraph belonging to the first regnal year of king Dharavarsha (Dhruva) records a gift of three hundred and sixty *mattar* of land to the goddess Durga-bhattaraki of Alampura and the construction of the main gateway *(sri-vagilu),* etc., and mentions Bala-varmarasa as administering Alampura and Somadi-bhatta as holding the *matha-patya* of the place.

Of the inscriptions of the Later Chalukyas, one, dated Saka 989 (A.D. 1067) and belonging to the reign of king Trailokyamalladeva (Somesvara I), refers to his feudatory *Maha-mandalesvara* Chiddanachola-maharaja as governing Ayaje-300 and records a gift of three hundred *gadyanas* of gold at the rate of one *gadyana* fan each village in the said division to the temple of Brahmesvara at Alampura. Two other inscriptions, both belonging to the reign of Bhuvanaikamalla (Somesvara II), are dated Saka 997 (A.D. 1075) and 998 (A.D. 1076) respectively. The former mentions *Mahamandalesvara* Chiddanachola-maharaja as the feudatory governing Kanne-300, while the latter refers to *Dandanayaka Naranamayya* of Vatsa-*kula*. A fourth epigraph belonging to king Tribhuvanamalla (Vikramaditya VI) is dated in the Chalukya-Vikrama year 2 (A.D. 1077-78) and mentions the king's feuda-tory Malla-maharaja of the Vaidumba family, who was governing Ayaje-300. These sub-ordinates of the king figure in the epigraphs as donors to the temple of Brahmesvara at Alampura.

10. INSCRIPTIONS, MANTHENA AND VASUDEVAPATNAM, DISTRICT SR1KA-KULAM.—A record from Manthena in Palakonda Taluk cites the regnal year 65 + 1 of the Eastern Ganga king Anantavarman (Choda-ganga) and records a gift of money to the temple of Kammatisvara. Four records on the four faces of a broken pillar at Vasudevapatnam, two of them dated respectively in Saka 1050 (A.D. 1128) and 1053 (A.D. 1131), record gifts of money for perpetual lamps in the temple of Durggidevi in Uttamaganga-vaisyagrahara, probably identical with Vasudevapatnam.

ASSAM

11. AHOM INSCRIPTIONS, GAUHATI, DISTRICT KAMRUP.-Dated in Saka 1666 *(guna-guna-gun-abja)*, the inscription from the Amratkesvara temple on the Kamakhya hill records the construction of the *matha* by *Brihatphukkana* Tarunaduvara by orders of *Svargadeva* Pramattasimha of Sakra-vamsa. A second inscription, from the Kedaresvara temple on the same hill, records the construction of the *matha* over the Kedara-linga by the same officer under the orders of *Svargadeva* Rajesvarasimha, the lord of Saumara, in Saka 1673(*Rama-muni-ras-endu).* A third inscription from the Navagraha temple, dated Saka 1674(*ved-adri-ras-endu),* records the construction of the Navaratna-*matha* by the same officer under orders of the same king.

BIHAR

12. PALA INSCRIPTION, GODDI, DISTRICT MONGHYR.—Written on the pedestal of a broken image, the inscription mentions king Madanapala of the Pala dynasty of Bengal and Bihar.

13. SUR INSCRIPTION, GOSHIKUNDI, DISTRICT MONGHYR.—Inscribed on a brick fixed on an abandoned well and dated in Hijra 960 and Vikrama 1610, the epigraph belongs to the reign of *Patisaha* Esalema Saha (Islam Shah of the Sur dynasty, 1545-57).

14. INSCRIPTION, RAJAUNA, DISTRICT MONGHYR.—The record is written negatively in characters of about the eighth century on a pedestal surmounted by two images, one a male and the other a female, and reads *Utpattikadevasri*.

GUJARAT

15. INSCRIPTION, DHOLKA, DISTRICT AHMADABAD.—There are two inscriptions on the stone image of Ranchhodji in the temple at Dholka, one engraved on the pedestal of the image and the other on the back. It is clear that a part of a bigger slab bearing a large inscription was cut off for the construction of the image which, as the epigraph on the pedestal shows, was installed in Vikrama 1266 (A.D. 1209). The original inscription, a portion of which is preserved on the back side of the image, was a large *prasasti* composed by the well-known Jaina poet *Muni* Ramachandra, who is known to have been killed in 1174. The object of this fragmentary inscription is to record the construction of a Jaina monastery called Udayana-*vihara* by the minister Vagbhata, apparently in memory of his father Udayana, who was the chief minister of Chaulukya Jayasimha Siddharaja (*circa* 1094-1144).

16. PLATES OF CHANDRADITYA, HILOL, DISTRICT AHMADABAD.—This charter was issued by Chandraditya of Harshapura, who was a subordinate of Kakka of Khetaka,

in the year 470, apparently referable to the Gupta-Valabhi era and corresponding to A. D. 788. It records the grant of two plots of land, one situated in Padataka-*grama* and the other in Hilohila-*grama*.

17. MAITRAKA CHARTERS, DISTRICT AMRELI.—One of the two grants issued from Valabhi in the Gupta-Valabhi year 323 and belonging to the reign of king Dhruvasena II Baladitya registers a gift of one hundred and fifty *padavantas* of land in the village of Machchetasika to Somasarman son of Sambakumarasarman. *Rajaputra* Dharascna was the *dutaka* of the grant and Skanda-bhatta, son of Vatrabhatti, its writer. The charter furnishes the latest date for king Dhruvasena II.

The second charter, issued in the Gupta-Valabhi year 368 from the *jayaskandhavara* of Pinchhapatraka-vasaka belongs to king Siladitya IV and registers the grant of two plots of land in the village of Ajjakonha in favour of Sankarasarman whose family hailed from Anandapura. The record furnishes the earliest date for Siladitya IV.

18. INSCRIPTIONS RAIPUR HILLS, DISTRICT BARODA.-Engraved in Nagari characters attnbutable to about the tenth century, one of the four epigraphs records the consecration of the goddess Sullesvaridevi by *Ranaka* Kajjavaka of Achchhahallaka who was the son of *Mahasamanta* Kanhaditya. The other three epigraphs also mention the same chief. Asthava figures as the writer of two of these records.

19. GUHILOT INSCRIPTIONS, RAJPIPLA, DISTRICT BROACH -An inscription in the Kumbhesvara temple at Jiyor, dated Vikrama 1463, Pausha-ba 1 Sunday (26th December, A.D 1406), refers to the reign of *Dviguna-Bhojaraja* Udayasimha. son of Dungarasimha-Bhoja, ruling from Vapi in the Vindhyas, and records that Govardhana son of the king s minister Jayasimha, repaired the temple. A damaged inscription from Sulpan, dated Vikrama 1480 Jyeshtha-su. 13, Friday (12th May, A.D. 1424), refers to the same king's rule at Nandapadra. Another inscription in the Nilakanthesvara temple at Old Rajpipla, bearing the dates Vikrama 1834, Margasira-su. 5, Friday (5th December AD 1777), and Vikrama 1839, Sravana-su. 8, Friday (16th August, A.D. 1782) refers to the reign of *Maharajadhiraja* Rajasimha, son of Pratapasimha, grandson of Jitasimha and great-grandson of Vainsalya of the Vindhya mountains. An inscription on the Lal Darwaza in the same area, dated Vikrama 1839 and Saka 1705, Vaisakha-ba. 3, Monday (19th May, A.D 1783) refers to the reign of the same king. Another inscription in the Rajakantha temple at Old Rajpipla, bearing the dates Vikrama 1845, Kilaka (A.D. 1788) and Vikrama 1851, Chaitra-su 3, Tuesday (A.D. 1785), refers to the reign of Vindhyadriraja Ajabasimha the younger brother of Rajasimha and son of *Vindhyaraja* Pratapasimha and records that Ajabasimha's queen Ratnavah built the Rajarajesvara temple and set up the footprints of Rajasimha. The queen's son Narasimha and her mother Sundaramba are also referred to.

20. RASHTRAKUTA GRANT, BHAVNAGAR, DISTRICT GOHELWAR -Preserved in the collection of the Gandhi-Smriti, this copper-plate inscription was issued bv Govinda of the Gujarat Branch of the Rashtrakuta dynasty in the Gupta-Valabhi year 500 .The charter records a grant of land made by the ruler while residing at Palittanaka (Palitana) to a Brahmana named Somaya.

21. INSCRIPTION OF MAHMUD BEGARHA, TARAPUR DISTRICT KAIRA T, records the construction of a well in Vikrama 1518 at Tarakanura (Tarapur) near Stambha-tirtha (Cambay) by Badaraja Dosi, when Gangadasa was ruling from Gandhara-nagari on the shore of the southern ocean in the Gurjara country as a subordinate of *Suratrana* Mahimuda Patasaha, i. e. Sultan Mahmud Begarha (1458 1511). Gandhara-nagari was situated in the suburbs of Cambay.

22. PLATES OF SRYASRAYA SILADITYA, KARCHELLA, DISTRICT SURAT.—DATED in 420, apparently referable to the Kalachuri era and thus corresponding to A.D. 688, this charter was issued from Navasarika by *Yuvaraja* Sryasraya Siladitya of the Lata branch of the Chalukya family and records the grant of Mudgapadra-*grama* in Vichihara. It was written by Sandhivigrahika Dhananjaya.

MADHYA PRADESH

23. PANDUVAMSI GRANTS, BONDA, DISTRICT BILASPUR.—Of the two copper-plate grants, the first belongs to Mahasiva Tivara and was issued in the king's fifth regnal year. It records the grant of Bondaka and Avadika, both situated in Piharaja-*bhukti*. The second grant was issued by king Mahasivaguptaraja on the 6th of the first (i.e. dark) fortnight of Pushya in his twentysecond regnal year. It records the grant of Sarkarapataka in Layottaka-*vishaya*. The grants are written in the box-headed characters of the sixth or seventh century, as used in the copper-plate grants of the Panduvamsis of South Kosala.

24. INSCRIPTION, DHUBELA MUSEUM, DISTRICT CHHATARPUR.—Engraved on a pillar originally found at Supia in the old Rewa State and dated in the Gupta year 141, Jyeshtha-su. 2, during the rule of the Gupta emperor Skandagupta, the epigraph records the erection of a pillar by Varga-gramika in memory of some of his dead relatives.

25. BILINGUAL INSCRIPTION, ASIRGARH, DISTRICT NIMAR (EAST).—A Stone inscription, its first half in a provincial variety of Hebrew and the second half in Nagari, was found on a grave near a tank in the Malaigarh area of the fort

26. PARAMARA INSCRIPTIONS, BHOJPUR, DISTRICT RAISEN.—Engraved in characters of the eleventh century on the pedestal of a *tirthankara* image in an old Jaina temple in the village, the first of the two inscriptions, which is damaged and fragmentary, belongs to the reign of king Bhojadeva. Its discovery at Bhojpur is interesting, as it suggests that the village derived its name from the Paramara king Bhoja (*circa* 1000-55). Another record, engraved on the pedestal of an image of Parsvanatha, records the setting up of two Jaina images by Chillana, the son of Rama and grandson of Nemichandra, in the reign of king Naravarman (*circa* 1097-1111).

27. BRAHMI INSCRIPTION, TORANDHER, DISTRICT RAISEN.—A Prakrit inscription in characters of the second century B.C. reads *Dhamasavasa matu danam*.

28. MEDIEVAL INSCRIPTION, PITHORIA, DISTRICT SAGAR.—A five-line stone inscription, dated *samvat* 993 (A.D. 936), refers to Mahatavi-deva (a name of Siva). The first line begins with salutation to the goddess Ambika.

29. INSCRIPTION, MAIHAR, DISTRICT SATNA.—Engraved on a stone slab in the Saradadevi temple, this inscription in Sanskrit verse and Nagari characters of about the tenth century contains a large *prasasti* recording the construction of a temple of the goddess Sarasvati by a Brahmana named Devadhara in memory of his deceased son Damodara. The *prasasti* was written by Bhava and engraved by Nagadeva.

MADRAS

30. INSCRIPTION OF MARAVARMAN SUNDARAPANDYA J, PALAVANATTAM, DISTRICT RAMANATHAPURAM.—This fragmentary inscription, bearing no date, contains

a *prasasti* developed up to a stage indicating the period when the Chola country was restored to Rajaraja III.

31. INSCRIPTION, CHEYDUNGANALLUR DISTRICT TIRUNELVELI.—Dated in the seventeenth regnal year of Maravarman Srivallabha, the inscription in a Siva temple in the village records a grant of land to commemorate the death of a woman who burnt herself.

32. INSCRIPTION OF MARAN CHENDAN, MALAIYADIKKURICHCHI, DISTRICT TIRUVENVELI.—This inscription, in mixed Tamil and Vatteluttu characters of about the seventh century, is dated in the seventeenth year of the reign of Maran Chendan and records the excavation of a rock-cut cave-temple. This is the earliest among the Pandya inscriptions hitherto known.

33. PANDYA INSCRIPTIONS, SRIVAIKUNTAM, DISTRICT TIRUNELVELI.—Dated in the reigns of certain medieval Pandya kings, the inscriptions record the services of Tevapiran Tadar who met Sundarapandya at Viradavalam and Gangaikondacholapuram and Virapandya at Kandiyur and obtained from them endowments of land for instituting-some festivals of certain specified occasions.

MAHARASHTRA

34. CHALUKYA INSCRIPTION, SANGAM, DISTRICT NANDED.—This fragmentary inscription, belonging to the time of the Western Chalukya king Vikramaditya VI and dated Saka 1042 (A.D. 1119), mentions the king's son Mallikarjuna and the latter's minister and commander Brahmasarman of the Bhrigu family.

35. PLATE OF GOVINDA III, NESARI, DISTRICT SATARA.—The charter, issued by the Rashtrakuta king Govinda III in Saka 727 (A.D. 805), records the grant of Nesarika-grama in Chandagada-*vishaya*, while the king was camping at Suguturu. The importance of the inscription lies in the mention of the *chihnas* snatched away by the Rashtrakuta king from thirteen rulers defeated by him, one of them being Dharma of Vangala.

MYSORE

36. KALACHURYA INSCRIPTION, EKSAMBT, DISTRICT BELGAUM.—The inscription, belonging to the reign of the Kalachurya king Bijjala and dated in Saka 1087 (A.D. 1165), refers to the Silahara chief Vijayaditya as a subordinate of the king. This is the latest known date for Vijayaditya.

37. LATER CHALUKYA INSCRIPTION, GUDIKATTI, DISTRICT BELGAUM.—The inscription, belonging to the reign of Trailokyamalla (Somesvara I) and dated in Saka 973 (A.D. 1051), refers to an earlier gift made in Saka 928 (A.D. 1007-08), when Jayasimha, the king's father, is stated to have been ruling evidently as a prince.

38. KALACHURI INSCRIPTION, GUDDADANVERI DISTRICT DHARWAR—A ten-line Kannada inscription, dated in Saka 1104 (A.D 1182) in the reign of the Kalachuri king Ahavamalla, records three grants to the god Mallikarjuna of Alurand and Yogesvara at Brahmapuri. It was found on the beam above the lintel of the *antarala* of the Kallesvara temple.

39. LATER CHALUKYA INSCRIPTION, KOLLUR, DISTRICT GULBARGA.—the cription, belonging to the reign of Somesvara IV, the last of the Western Chalukya kings and dated in Saka 1107 (A.D. 1184), refers to the defeat of Bhillama, probably of the Yadava dynasty of Devagiri, and praises the king's general Bammidcva.. It records the construction of the temple of Kannesvara by *Mahamandalesvara* Allahulideva of the Karttavirya family, who was the king's governor of Sagara-500, in the name of the chief's father *Mahamandalesvara* Kannarasa. It registers certain grants in favour of the deity.

40. HOYSALA INSCRIPTION, ARSIKERE, DISTRICT HASSAN.—A large stone inscription of the reign of the Hoysala king Narasimha I, dated in the year Sarvadhari (A.D. 1168), records the construction of a Jaina *basti* at Nakara-Jinalaya by the Nakaras or merchants. A later inscription on the same stone states that the minister Chandramauli made grants for the restoration of the temple.

41. LATER CHALUKYA INSCRIPTION, KlLARATTI, DISTRICT RAICHUR.—The inscription, which belongs to the reign of Trailokyamalla Somesvara II and is dated in A.D. 1056, introduces the king's younger brother named Jayasimha Samaraikamalla as a prince *(kumara)*. Though the prince is known from a few other records, he is not mentioned in the genealogical accounts found in the records of the family.

42. HOYSALA CHARTER, TURUVEKRE, DISTRICT TUMK.UR.—A charter, .with seven plates and a tiger-seal, belonging to the reign of the Hoysala king Narasimha III and dated in the year Kalayukta (A.D. 1258), records the conversion of the village Turuvekera into an *agrahara*-town and its renaming as Vijaya-Narasimhapura, by Somadandanayaka, the builder of the famous Kesava temple at Somanathpur The village was granted to several persons for the benefit of the temples of Kesava and Sankaresvara built by him at that place.

ORISSA

43. PLATES OF BHIMASENA, PANDIAPATHAR, DISTRICT GANJAM.—Dated in the year 89, apparently referable to the Bhauma-Kara era of A.D. 831 and corresponding to A.D. 919, this charter records the grant of Kurmatala-*grama* in Kamandula-*patta* by king Bhimasena of the Nala dynasty. This is the only inscription of the said family discovered in Orissa.

RAJASTHAN

44. GUHILOT GRANTS, DUNGARPUR.—These are two copper-plate charters, both issued from Kishkindhipura. The first charter belongs to a chief named Bhavihita and is dated in the year 48, apparently of the Harsha era. It records the confirmation of the grant of a village in Purupatta-*vishaya* to Asangasarman of Kuragirika, originally made by the king's paternal uncle Devagana. The second charter was issued by the chief Babhata possibly a son of the chief Devagana, in the year 83 of apparently the same era. It registers a gift of land in Mitrapallika-*grama* in Kishkindhipura-*vishaya* in favour of five Brahmana brothers of Kuragiri. The importance of the inscriptions lies in the fact that they are among the earliest records of the Guhilot dynasty.

45. INSCRIPTION, AMBER, DISTRICT JAIPUR.-In the palace at Amber is an inscription which shows that the name of the son of Bharmal of Amber was Bhagavantdasa and not Bhagavandasa as is usually believed.

46. BILINGUAL INSCRIPTIONS, BHAPURA AND AMBER-SHAHPURA ROAD, DISTRICT JAIPUR.—Two bilingual inscriptions, dated *samvat* 1694 (A.D. 1637) and 1722 (A.D. 1665) were respectively found at Bhapura and off the Amber-Shahpura Road. The latter refers to the completion of a well during the reign of Maharaja Jayasimha II.

47. INSCRIPTIONS, CHERAI, DISTRICT JODHPUR.-Of the five records from this place which are engraved on memorial-pillars, two are dated in Vikrama 993, Jyeshtha-sudi 10, Monday (22nd May, A.D. 937). One of them refers to the erection of the pillar and mentions Arjuna, son of Dulaharaja of Pratihara-*jati*, probably as the person in whose memory it was raised. Another record, dated Vikrama 1072, refers to Sujana, son of Lakhana of Pratihara-*gotra*.

48. LATE MEDIEVAL INSCRIPTION, RANTHAMBHOR, DISTRICT SAWAI MADHO-PUR.—A stone inscription, with the date *samvat* 1659, was discovered in the ruined structures of the fort. It records the consecration of a stepped well *(vapi)*.

49. CHAHAMANA INSCRIPTION, BARLUT, DISTRICT SIROHI.-Engraved in Nagari characters on a stone slab kept in the Santinatha temple, this inscription in Sanskrit is in three parts. The first part, dated in Vikrama 1283, Jyeshtha-su. 8, Thursday, in the reign of the Songira (Jalor) Chahamana *Maharanaka* Udayasimha, mentions Yaso-dhira as the king's minister and records that *Rajan* Abhata, along with his sons, made certain gifts in favour of Santinatha and of the Mananasimha-vihara for the merit of *Ra°* Manana-simha, the son of Gajasimha of Mandora and the grandson and great grandson respectively of Alhana and Asaraja of Nadula. The second part, dated in Vikrama 1330, Phalguna-su. 11, Sunday (18th February, A.D. 1274), in the reign of *Mahamandalesvara* Chachigadeva, states that *Ra°* Abhata, along with his sons, built the Mananasimha-vihara for the merit of *Ra°* Mananasimha. The third part refers to some pious deeds of *Sre°* Padmasimha of the Pragvata community and to Purnabhadra-suri of Brihad-gachchha. The inscription throws welcome light on the foundation of the Chahamana house of Sirohi.

50. INSCRIPTION, UNWAS, DISTRICT UDAIPUR.-An inscription of *Maharana* Rajasimha II, engraved a few weeks, before his death in *samvat* 1817 (A.D. 1760), was found.

UTTAR PRADESH

51. INSCRIPTION, BALAI-KOT, DISTRICT BULANDSHAHR.—A stone inscription of the eighth century mentions king Yasovarmadeva.

52. INSCRIPTION OF GUPTA AGE, BELWA, DISTRICT VARANASI.-Being fragmentary and very much damaged, it is difficult to be sure about the name of the king mentioned in this record, although he may be Budhagupta.

53. INSCRIPTION, ILIYA, DISTRICT VARANASI.-Engraved on the fragment of a sculptured slab, it records the construction of a *kirtti* (probably a shrine) during the reign of king Manorathavarman. Considering the fact that the epigraph is written in Sanskrit in the Siddhamatrika characters of about the seventh or eighth century, king Manorathavarman ruling over the Varanasi region may be supposed to have been a member of the Maukhari family.

54. INSCRIPTIONS, KANDWA, DISTRICT VARANASI.-The records belong to *Rani* Bhavani of Nator in north Bengal, who is described as the wife of Gauda king and as

responsible for the excavation of tanks at Kasi. The epigraphs, written in Sanskrit in Bengali characters, are dated in Saka 1677 *(gotra-turanga-bhupati).*

55. INSCRIPTION, SANSKRIT UNIVERSITY MUSEUM, VARANASI.—Originally found somewhere in District Mirzapur, this fragmentary and damaged inscription was incised during the rule of a king named Rudradamasri. The language of the record is Sanskrit and its characters are Brahmi of the third or fourth century A.D. The name of the ruler seems to indicate his relation with the Saka house of western India.

MISCELLANEOUS

56. EARLY INSCRIPTION OF AN UNKNOWN DYNASTY.—Among miscellaneous inscriptions, the most interesting is one the findspot of which is unknown but an impression of which was found in the house of the late Shri C. R. Krishnamacharlu, Madras. Written in characters of about the fourth century A.D., it refers to *Maharaja* Chandesvarahastin who was the son of *Maharaja* Isvarahastin. It is difficult to locate exactly the territory where these kings flourished.

57. SHAHI INSCRIPTION, KABUL.—Another interesting inscription falling in this category is the inscription of Khingala-shahi, dated in his eighth regnal year. It is written in the Siddhamatrika characters of the sixth or seventh century A.D. on an image of Maha-Vinayaka, now worshipped by the Hindu residents of Kabul, Afghanistan, and records the installation of the image by a Shahi king.

ARABIC AND PERSIAN INSCRIPTIONS[1]

GUJARAT

1. EPITAPH, AHMADABAD.—An interesting inscription gives A.H. 1276 (A.D. 1859) as the date of the death of two brothers Khanlar Mirza and Sharafu'd-Din Mirza, great grandsons of Nadir Shah, through the latter's son Rida Quli Mirza and (his wife), the daughter of Shah Sultan Husain Safawi.

2. INSCRIPTION OF THE EARLY MUGHULS, DISTRICTS AHMADABAD AND BARODA.—Of the Mughul inscriptions, three may be noticed here. One of them, now fixed as the headstone of a grave in the compound of the Jami' Masjid, Baroda, is fragmentary and does not appear to be *in situ.* The extant portion records the martyrdom of Qutbu'd-Din Muhammad Khan governor of Baroda and Broach and an uncle of Mirza Aziz Koka, Akbar's foster-brother, who was foully murdered by the last Gujarat Sultan in A.H. 991 (A. D. 1583). The inscYiptional tablet must have originally belonged to the grandiose mausoleum of Qutbu'd-Din Muhammad Khan at Baroda itself. The other two Mughul records appear on the left and the right sides of the inner gateway of Bhadra at Ahmadabad but are very badly scraped off. Both, dated in A.H. 1032 (A.D. 1623) in the reign of Jahangir, seem to describe the victory of Safi Khan, then Diwan of Gujarat, over prince Shah Jahan and his being consequently awarded the title of Sa'if Khan.

[1]Information from the Assistant Superintendent for Arabic and Persian Inscriptions of the Department.

3. INSCRIPTIONS OF THE SULTANS OF GUJARAT, DISTRICT BARODA, PANCH-MAHALS AND SORATH.—An inscription, now fixed on the wall of Pir Ghoda's tomb inside the Lakshmi-Vilas Palace compound at Baroda, is badly damaged but seems to record the construction of a mosque, a tomb, well, etc., by Malik Bektars, entitled A'zam Khan, in A.H. 825 (A.D. 1421-22). Of the two epigraphs pertaining to Mahmud I, the one from Prabhas Patan, District Sorath, records the building of a mosque by the *aslahadar* (arms-bearer) of the king, Malik Budh by name, while the other, from Santrampur, District Panch-Mahals, mentions a renowned nobleman of the period, Malik Sarang, entitled Qiwamu'l-Mulk, as having constructed a mosque in A.H. 905 (A.D. 1499-1500). An inscription from the Jami' mosque at Baroda refers to the erection of a Jami' mosque, in A.H. 910 (A.D. 1504-05) by Mahmud I's son, prince Khalil Khan, who later succeeded his father under the Muzaffar Shah II. It may be pointed out that prince Khalil had held the fief of Baroda until his accession to the throne.

4. INSCRIPTIONS. CAMBAY, DISTRICT KAIRA.— The earliest inscription (pl. LVIC), now fixed to the pulpit in the Salvva Mahalla mosque, assigns the building of a Jami' mosque to Sa'id, son of Abu Sharaf, son of 'Ali, son of Shapur al-Bammi, in A.H. 615 (A.D. 1218), when Gujarat was ruled over by the Chaulukya king Bhimadeva II (1178-1242). The most interesting aspect of this epigraph is that it seems to have originally belonged to the Jami' mosque of Cambay, built by Sa'id, son of Abu Sharaf, on the ruins of an older one, which itself had been caused to be rebuilt by the orders of as well as a grant of one lakh *balotras* by the famous Chaulukya king, Siddharaja Jayasimha (1094-1143), after the old Jami' mosque of the city had been demolished by non-Muslims in the course of communal disturbances. 'Awfi, the author of Jawami'u'l-Hikayat, who gives these details, has also stated that Sa'id-i-Sharaf Tamin *(recte* Bammi) reconstructed the mosque a few years before his visit to Cambay. The other early inscriptions are all epitaphs recording the death of Aminu'd-Din Abi'l Mahasin, son of Ardahir, in A.H. 630 (A.D. 1232), of Sharafu'd-Din Abu Sharaf al-Bammi in A.H. 646 (A.D. 1248) and of Sharafu'd-Din Murtada, son of Muhammad al-Astarabadi, in A.H. 683 (A.D. 1284.)

An epitaph, dated in A.H. 699 (A.D. 1300), refers to the third member of the above-mentioned Abu Sharaf family, viz. Kamalu'd-Din Sulaiman, son of Ahmad and great grandson of Abu Sharaf al-Bammi. The other two epitaphs likewise belong to two members of another family, viz. Haji Abu Bakr, son of 'Ali, son of Abu Bakr al-Irbili, and probably his uncle, Muhammad bin Abu Bakr, who died respectively in A.H. 710 (A.D. 1310) and A.H. 736 (A.D. 1336). There is another group of epitaphs which refer to officials: one of them states that Shihabu'd-Din Yahya, a governor of Cambay, died in A.H. 698 (A.D. 1299). He was probably appointed the first governor of the city after the conquest of Gujarat in 1298 by 'Alau'd-Din Khalji. The other refers to the 'prince among ministers and learned', Shamsu'd-Din Mahmud, called *dabir* (secretary), who died in A.H. 732 (A.D. 1331). Among the other interesting records commemorating the death of men of different walks of life-merchants, learned men, etc.,—there are a few which mention the 'freed slaves' who were not only well-to-do but also attained, by dint of merit, prominent positions during their lifetime. One of them, for example, was the great Malik, Salahu'd-Daulat wa'd-Din a freed slave of Mukhlis a's-Sultani (died A.H. 716 or A.D. 1316) and the other was Shaikh Zainu'd-Din, son of Ayaz, a freed slave of Shaikh Gilani (died A.H. 843, i.e. A.D. 1439). There are two more epigraphs which assign the construction of mosques to two 'freed slaves' One of these records the construction, in A.H. 699 (A.D. 1300), of a mosque by Khwaja Aminu'd-Din Waqi, a freed slave of the great Khwaja Fakhru'd-Din Abu Bakr al-Makki, who also made an endowment of three shops situated in the basement of the same building for its maintenance. The other record assigns the construction of a mosque to Haji-Sa'id, a freed

slave of Muhammad Shuja', in A.H. 896 (A.D. 1490-91). Another inscription assigns the construction of the Idgah on which it is fixed to Ikhtiyaru'd-Daulat wa'd-Din Malik Mufarrah Sultani, *dawidar-i-khass* (royal inkstand-bearer) and *ra'is-i-Mamalik* (chief of the kingdom) in A.H. 783 (A.D. 1381-82). Malik Mufarrah, also entitled Rasti Khan and Farhatu'1-Mulk, was governor of Gujarat from 1377 to 1391.

MAHARASHTRA

5. INSCRIPTION, NARNALA, DISTRICT AKOLA.-—This inscription assigns the building of a mosque in A.H. 915 (A.D. 1509-10) to Malik Raihan, entitled Mukammal Khan, and gives the writer's name as Mahmud.

6. INSCRIPTIONS, JANJIRA, DISTRICT KOLABA.—The members of the ruling family of Janjira, viz. Sidi Sumbul, son of Raihan, Sidi 'Abbas, and Zuhra, wife, and Halima, daughter of Sidi Surur, alias Yaqut Khan, are the subject-matter of four epitaphs dated in A.H. 1087 (A.D. 1676-77), A.H. 1091 (A.D. 1680), A.H. 1098 (A.D. 1686) and A.H. 1120 (A.D. 1708) respectively.

An epigraph, now fixed on the wall of the Musafaron-ki-Masjid, states that Fahim Kha'n, who was sent by Nizam Shah (Murtada I of Ahmadnagar) to take charge of and to repair the fort, carried out the repairs to the fort and constructed large bastions in A.H. 984 (A.D. 1576-77).

7. INSCRIPTION OF THE 'ADIL SHAH I DYNASTY, SHOLAPUR.—This inscription is fixed into the platform of the flagstaff of the fort and assigns the construction of the city-wall to Babaji Dabit Khan, the *naib-i-ghaibat* (deputy-in-absence) of the king.

RAJASTHAN

8. MUGHUL INSCRIPTION, PHALODI, DISTRICT JODHPUR.—Dated in the reign of Aurangzeb and during the governorship of Maharaja Jaswant Singhji, this epigraph records the construction of a mosque.

UTTAR PRADESH

9. INSCRIPTIONS OF THE MUGHULS, DISTRICTS AZAMGARH AND ETAH.—An inscription of Akbar, from Firozpur Silauni in Etah District, records the construction of a well by Aman Daulat, a wet-nurse of Adham Khan, Akbar's foster-brother. The subject-matter of a record of Shah Jahan's reign, from Sakita in the same District, is the building of an *aiwan* (portico) and a *chamanzar* (garden) in the memory of Hadrat Miran Sayyid 'Abdu'l-Qadir Jilani by Mir Tahir in A.H. 1051 (A.D. 1641-42), when Nawwab Uzbek Khan was the governor. An epigraph, dated A.H. 1099 (A.D. 1687-88), from Ganjahara in Azamgarh District, assigns the construction of a mosque to Muhammad .Tahir, son of Kamal. Two tomb-stones near the Jami' mosque at Nizamabad, in the same District, contain interesting information to the effect that Miyan Maqbul and his sister's son Husain Khan suffered martyrdom (in a battle) on Friday, 10th Shawwal, A.H. 969 (13th June A.D. 1562).

10. INSCRIPTION OF THE SULTANS OF BENGAL, KHARID, DISTRICT BALLIA.—Of the two records of the Bengal Sultans, one, which is engraved on a slab lying loose in the Jami' Masjid, is fragmentary and mentions the construction of a mosque during the

reign of 'Alau'd-Din Husain Shah. The other (pl. LVI D) belongs to the time of Husain Shah's son and successor Nusrat Shah and refers to the construction of a mosque in A.H. 933 (A.D. 1527) by Khan-i-A'zam Mukhtiyar Khan (Bakhtiyar Khan), who is mentioned as the *sarlsahkar* of the valley of Kharid.

WEST BENGAL

11. INSCRIPTIONS OF THE SULTANS OF BENGAL, CALCUTTA.—Two inscriptions of the Sultans of Bengal were copied in Calcutta. One of them, recently acquired by the Indian Museum, is a hitherto-unnoticed record of Husain Shah, assigning the erection of a mosque in Jumada II, A.H. 899 (April, A.D. 1494) to Majlisu'l-Majalis Majlis Barbak. This is the earliest of the inscriptions of this monarch discovered so far. The other inscription, now fixed into a wall of Calcutta Madrasa building, Calcutta, but originally from Mangalkot in District Burdwan, records the construction of a Jami' mosque in A.H. 930 (A.D. 1523-24) by Khan-i-Mu'azzam Nayaz Khan, son of Haidar, during the reign of Nasiru'd-Din Nusrat Shah.

IV. NUMISMATICS AND TREASURE-TROVE[1]

ANDHRA PRADESH

1. PADMA-TANKAS, ANIGANIDODDI, DISTRICT ANANTAPUR.—Thirteen gold coins, found as treasure-trove, were, on examination, found to be the well-known *padma-tankas,* believed to have been issued by the rulers of south Kanara before the twelfth century.

2. VIJAYANAGARA COINS, MURADI, DISTRICT ANANTAPUR.—Twelve gold coins, pertaining to a treasure-trove, included issues of the Vijayanagara kings Achyuta, Sadasiva and others.

3. VUAYANAGARA COINS, TIMMANACHERLA, DISTRICT ANANTAPUR.—The coins, forming a treasure-trove, belonged to the Vijayanagara king Harihara.

BIHAR

4. MISCELLANEOUS FINDS, DURGA-ASTHAN, DISTRICT BHAGALPUR.—The finds included two gold coins of Samudragupta, a plain gold ring, a gold nose-ornament with an ornamental design, a gold ear-ring, two pieces of gold chain, a gold standing female figure in repousse with the right hand akimbo and three pieces of the Northern Black Polished Ware with silvery lustre.

5. MUGHUL COINS, GOURIA-KARMA, DISTRICT HAZARIBAGH.— One hundred and seventysix silver Mughul coins were found.

6. VIGRAHAPALA-DRAMMAS, RAGHUGARH, DISTRICT MONGHYR.—Four silver Vigrahapala-*drammas* were included in a small hoard.

KERALA

7. MISCELLANEOUS FINDS, KOTHAMANGALAM, DISTRICT ERNAKULAM.—A beautifully-carved box, reported to contain gold bangles, necklaces and coins, was found. Some of the objects had been melted down before action could be taken.

MADHYA PRADESH

8. GUPTA COINS, PITAIBAND, DISTRICT RAIPUR.—A hoard of fortynine coins, three of Kramaditya (pl. LVI B) and the rest of Mahendraditya, each weighing 19.29 to 21.30 grains, was found.

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[1] Iformation from: 1-3 and 10, the Superintendent, South-eastern Circle, 4 and 5, the Superinten-dent.. Mid-eastern Circle and 9 and 12, the Superintendent. South-western Circle, of the Department; 6 and 17, the Government Epigraphist for India; 7, the Director of Archaeology, Kerala State; 8, the Curator. M.G.M. Museum, Raipur; 11 and 13, the Director of Archaeology, Mysore State; 14, the Superintendent, Rajputana Museum, Ajmer; 15, the Chief Superintendent of Archaeology and Museums, Rajasthan State; and 16, Shri K..D. Bajpai, University of Saugor.

MAHARASHTRA

9. EARLY AND MEDIEVAL COINS, ELLORA, DISTRICT AURANGABAD.—Three coins of Kumaragupta, one of the Kalachuri Krishnaraja, four of the Kadambas, two of the Gadhaiya type, one each of Muhammad Shah bin Humayun Shah Bahmani, Firuz Shah Bahmaniand GhiyasuM-Din Tughluq I and the rest of other Bahmani rulers were collected in the course of clearance.

10. BAHMANI COINS, TALODI-G, DISTRICT CHAN DA.—Twenty two copper coins, mostly of Mahmud Shah and Humayun Shah, were found.

MYSORE

11. ORNAMENTS AND MYSORE COINS, BRAHMIPURA, DISTRICT BANGALORE.—Twentyfour gold *fanams* of the Mysore dynasty, three gold ear-ornaments and a silver receptacle were discovered.

12. GOLD COINS, BUAPUR.—A hoard of several gold coins kept in a copper jar was discovered at Gol-Gumbad. It consisted of three anonymous gold coins of south India, each with a flattened globule and faint punch-mark, respectively on the obverse and reverse, and three coins of Muhammad 'Adil Shah of Bijapur.

13. MUGHUL COINS, RAKTAL, DISTRICT GULBARGA.—Seventyseven coins of Aurangzeb were found.

RAJASTHAN

14. LATE MUGHUL COINS, KERIAN-KHURD, DISTRICT AJMER.—Out of a hoard of fiftysix coins, fortyfive bore regnal years of Shah 'Alam II. The coins are now in the Rajputana Museum, Ajmer.

15. MISCELLANEOUS COINS, UDAIPUR DIVISION.—Two thousand nine hundred and eighteen coins, variously belonging to the Gadhaiya type, early Arabs, Imperial Mughuls and later rulers, were found at different places.

UTTAR PRADESH

16. PANCHALA COIN, AHICHCHHATRA, DISTRICT BAREILLY.—A copper Coin of the smaller variety, bearing the legend *Sivanandisa sirisa* in third-century characters was found.

WEST BENGAL

17. MEDIEVAL COINS, VANGIYA SAHITYA PARISHAD, CALCUTTA-Two silver *tonkas* of the Bengal ruler Danujamardanadeva, one of them issued in Saka 1339 from the Chati-grama mint, form part of the coUection of the Vangiya Sahitya Parishad, Calcutta.

V. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. BUDDHIST SITE IN DISTRICT GUNTUR.—At Uppugunduru in Ongole Taluk was discovered, by the South-eastern Circle of the Department, a large mound, in which a number of Buddhist antiquities, viz. statues of Buddha and sculptured panels (pl. LVII A and B), were found. From the same place was recovered a Prakrit Brahtni inscription of the Ikshvaku ruler Virapurisadata

2. NEOLITHIC SITE IN DISTRICT NELLORE.—A neolithic site was discovered by Shri N. Isaac at Kurichedu, where a habitation-site of the early historical period, characterized by the Red Polished Ware, was also noticed.

3. BUDDHIST SITE IN DISTRICT VISAKHAPATNAM.—The already-known site of Lingarajupalem (*1954-55*, p. 61) yielded, on re-examination by the South-eastern Circle of the Department, sherds of the Black-and-red Ware. The *dharma-chakra*, noticed previously, was taken possession of and its broken fragments pieced together (pl. LVII C).

BIHAR

4. SCULPTURES IN DISTRICT BHAGALPUR.—Dr. K. C. Panigrahi re-examined an important collection of sculptures ranging in date from the sixth-seventh to the twelfth-thirteenth centuries on the Kherhi hill, situated in Shahakund Police-station.

On the Murli-pahari hill at Sultanganj, a large number of medieval sculptures were examined by Shri A. D. Singh.

5. FORT IN DISTRICT RANCHl.—Vast structural remains, consisting of a fort, temples, tanks, etc., were examined by Shri B. K. Sharan at Doisanagar.

6. TEMPLE IN DISTRICT RANCHI.—Dr. K. C. Panigrahi noticed a late medieval temple of the *rekha*-order at Biru in Simdaga Sub-division.

DELHI

7. EARLY SCULPTURES IN DELHI.—In the course of repairs to the Sultan-Ghari monument by the North-western Circle of the Department (p. 98), it was discovered that the octagonal chamber of the tomb lay on a square platform retained by ashlar-stones and filled with earth and debris in the centre. The dismantlement of the lime-concrete roof brought to light several beautifully-carved lintels from Hindu temples (pls. LVII I A and B and LXXXVI A). These carvings, of approximately the seventh century, place the date of the pre-Muslim occupation of the site considerably earlier than so far known. Included among these sculptured slabs was the upright of a railing with medallions in front and three mortise-holes on a side to receive cross-bars (pl. LVIII B),

GUJARAT

8. MICROLITHIC TOOLS IN DISTRICT BROACH.—Shri K. V. Soundara Rajan discovered at Mehgam, a site already known to be of Harappan affiliation *(1957-58,* p. 15), microlithic tools typologically distinct from the Harappan ribbon-blades but equatable with those found at the lowest levels at Rangpur. Points formed a major type in the collection.

Shri Soundara Rajan also discovered at Nangal, a known black-and-red ware site, fluted cores of microliths. At the same site, at the lowest levels in the cutting of the mound, a complete extended burial, oriented north-south, was also noticed. The exact affiliation of the burial has yet to be determined.

9. HARAPPAN SITES IN DISTRICT MADHYA SAURASHTRA.—In the neighbourhood of the excavated site of Rojdi *(1958-59,* p. 19), a team of the Archaeological Unit of the Government of Bombay at Rajkot explored sixteen villages—Amrana, Belan, Gala, Ghatsila, Ghumto, Gunjana, Hajanabi, Jetpur, Jhikri, Jodhpur, Kantipur, Modpur, Nagalpur, Pithad, Rangpur and Raopur. Three of them, viz. Hajanabi, Jhikri and Pithad, yielded pieces of Harappan pottery; at the last-named place were found two dishes-on-stand.

10. MICROLITHIC TOOLS IN DISTRICT PANCH-MAHALS.—Shri K. V. Soundara Rajan discovered a microlithic site, presumably of chalcolithic affiliation, near the village Jawanpura on the bank of the river Deo between Champaner and Desar. The industry was on agate, chert and chalcedony and comprised fluted cores, scrapers and blades.

11. EARLY MUSLIM SEAL IN DISTRICT SORATH.—In the vicinity of the Bava-pyara caves, Junagadh, the Western Circle of the Department found a terracotta seal containing the legend *'Allah Muhammad* in Nashkh characters with Kufic flourishes. The style of writing may not be later than the thirteenth century.

HIMACHAL PRADESH

12. FOSSIL IN DISTRICT BILASPUR.—Dr. A. P. Khatri found an almost complete lower jaw, with molars and canines intact, of a primate, very akin to the loris from Haritalay-nagar, 18 miles north-west of Bilaspur. The red clay which yielded this specimen geologically belonged to the Nagri zone of the Pontian Age (Lower Pleistocene). The exact place of the find was Hari-ka-tiba, east of Hari village, which had yielded to previous explorers valuable finds of fossil-apes, such as *Dryopithecus punjabicus (Sivalensis himalayensis), Ramapithecus brevrostris* and *Bramapithecus,* all ranging in date from the uppermost Middle Miocene to the Middle Pliocene.

KERALA

13. ROCK-CUT CAVE IN DISTRICT KOZHIKODE.-The Department of Archaeology Kerala State, inspected a rock-cut cave at Panniyannur Amsom, Chambad Decom brought to light during quarrying in the region. The cave had two compartments, each 3 ft sauare Though the deposits in the compartments had been disturbed before the inspection, broken iron implements, parts of a tripod and a round-based Black-and-Wred are jar were found in the area.

14. JAINA RELICS IN DISTRICT PALGHAT.-A ruined Jaina temple, with sculptures of Mahavira and Parsvanatha and pillars, plinths and other remnants, was discovered at

Chakkyar Thottam, locally known Chakkyar Kundam, in Alathur Taluk, by the Director of Archaeology, Kerala State.

MADHYA PRADESH

15 EARLY SITE IN DISTRICT BHIND.-Shri J. P. Shrivastava discovered black-and-red wire, in addition to the Northern Black Polished Ware, at Asohna, Barauli, Jamdara and Mow, all in Gohad Tahsil.

16 TERRACOTTAS IN DISTRICT BHIND.-Shri J. P. Shrivastava discovered several interesting terracotta figures at Barehat. Notable among them was a fine piece showing a woman seated under tree in a thoughtful pose (pl. LVIII C), possibly Sita in Ravana's asoka-*vatika*. The features and modelling are in the typical Gupta style.

17 STONE TOOLS IN DISTRICT CHHINDWARA.—Dr. A. P. Khatri found a large number of tools of Series II at a ridge near Mohgaon (Kalan), a site well-known for its plant-fossils.

18 He also discovered a very rich microlithic site at Chhindwara, in the fields opposite the building of the Tribal Research Institute. The microliths consisted of flakes, backed blades, scrapers and points.

19 PALAEOLITHS IN DISTRICT INDORE.—Trappian cleavers, discoids, scrapers and handaxes were found by Shri V. S. Wakankar near the Sukhaniwas Palace, Indore.

20 MEDIEVAL SCULPTURES IN DISTRICT JABALPUR.—Sculptures of the tenth to twelfth centuries, in the Kalachuri style, were found by Shri C. B. Trivedi at Bhidari-kalan, Patan, Fular, Bhita, Pipariya and Kunda. A colossal Varaha at Bhita was remarkable.

21 STONE IMPLEMENTS IN DISTRICT JABALPUR.—Stone implements (pl. LIX) were found by Shri C. B. Trivedi in the valleys of the Pariat, Gaur and Hiran, all tributaries of the Narbada. Tools of Series I occurred at Pipari and of Series II at Batai, Birhaula-khera, Deori Doli, Dunda, Gauriya, Kalan, Keolari, Khajarwara, Nimkheda and Saliwada. Micro'liths were found at Basan, Budbudi, Dubha-khera, Gadaghat, Ghughri, Gubra-kalan, Hansapur, Jhonjh, Lakhari, Lilkheda, Matamar, Silpura, Sonpur and Sukn. Microliths and black-and-red ware were discovered at Nirandpur; Patan and Bhita had the Northern Black Polished Ware in addition.

21. PROTOHISTORIC SITE IN DISTRICT NIMAR (EAST).-Shri V. K. Bajpai and Shri C. Krishna found microliths, red ware with black painting and black-and-red and red-slipped wares, grey ware with light-cream slip and dull-grey ware on the Tapti, 5 miles south-west of Burhanpur.

22. STONE IMPLEMENTS IN DISTRICT NIMAR (EAST).—Shri C. Krishna discovered palaeolithic and microlithic tools in the beds of the Agni, Kundala and Machikunda, all tributaries of the Narbada, at Jamadhad, Matupur, Chanera, Mojwadi and Garbardi.

MicroHths, consisting of blades, lunates and scrapers, and fluted cores were found at Punaghat-kala, Chalapa-khurd, Borkheda-khurd, Tosaniya and Karoli in Harsud Tahsil and Dehgaon, Hutiya and Atud-khasa in Khandwa Tahsil.

23. ROCK-CUT CAVES IN DISTRICT NIMAR (WEST).—Shri V. S. Wakankar discovered two large rock-cut caves near Bijagad, each consisting of a pillared hall, respectively 40 x 30 ft. and 30 x 20 ft. They did not contain any painting or sculpture. Sculptural remains of the Paramara period were noticed in the fort at Bijagad.

24. EARLY SITE IN DISTRICT NIMAR (WEST).—At Mujali, on the confluence of the Mogri and Goi, 12 miles west of Sendhawa, Shri V. S. Wakankar found a much-eroded mound with black-and-red ware.

25. PALAEOLITHS IN DISTRICT RAISEN.—Shri V. S. Wakankar found a palaeolithic factory-site near the medieval fort at Raisen. Cleavers and handaxes were present in the collection.

26. ROCK-SHELTERS IN DISTRICT SAGAR.-Shri Vedanand chanced upon a few painted rock-shelters near Abchand. Later on, the Department of Achaeology of the University of Saugor surveyed a wider area and found about a dozen rock-shelters with paintings in red ochre, cream and white. The subjects generally were: hunting, horse-riding, battle, dance, music and domestic scenes. The animals represented were the dog, buffalo, bull, goat, horse, elephant, deer, boar and tiger. The peacock was sometimes present. Superimposition of paintings was clear in some cases. Besides paintings, a few engravings were also noticed.

27. STONE IMPLEMENTS IN DISTRICT SAGAR.—Professor K. D. Bajpai and others discovered tools, mostly of Series II, in the valley of the Bina. A large number of microliths—scrapers, cores, arrow-heads and crescents—were picked up at Makronia and other sites in the District.

A few microliths, but no pottery, were found at the new site of the buildings of the University of Saugor by Shri C. B. Trivedi.

28. TEMPLES AND SCULPTURES IN DISTRICT SAGAR.—The Department of Archaeology, University of Saugor, found the remains of a Kalachuri Saiva temple, with images of Ganesa, Siva, Nandi and Narasimha, at Pithoria.

At Rehli was found a life-sized image of Surya, besides those of Hari-Hara, Lakshmi-Narayana, Agni, Ganga, Yamuna, Vaishnavi, *nava-grahas* (pl. LX A), Uma-Mahesvara, Ganesa, Chamunda and *naga* and *nagi*—all of the medieval period.

Similar sculptures were discovered at Deori on the Sukhchain, where there was also an elaborately-carved doorway.

At Bina, 6 miles to the east of Deori, were found the remains of a Kalachuri temple, in the form of slabs and panels representing Lakshmi-Narayana, *nava-grahas*, Siva-Parvati, Skanda-mata and *yaksha* and *yakshi*, besides several Jaina *tirthankaras*.

At the well-known site of Eran, a number of panels exhibiting scenes from Krishna's life, besides a female torso,—all of the Gupta period,—were found.

29. MICROLITHS IN DISTRICT SEHORE.—Shri V. K. Bajpai and Shri M. R. Ghule found microliths in the Dharmapuri rock-shelters near Bhopal.

30. ROCK-SHELTERS IN DISTRICT SEHORE.—Shri V. S. Wakankar discovered seven painted rock-shelters near Nayapura, with large inscriptions in shell-characters on their roofs.

Near Shahad-karad he found a few more rock-shelters with interesting paintings, one of which depicted finely-drawn archers, superimposed on an earlier painting of bulls in white.

Near Bhinyapura, 20 miles south of Bhopal, he noticed a group of nearly fifty rock-shelters, locally known as Bhima-betka. The varied paintings were in red and white, in red outline with white infilling and in polychrome, the faint red ones being the earliest and the polychrome ones latest. There were many painted records in shell and Gupta characters. In one of the rocks there was a chiselled platform in a hollow, at the top of which was an inscription in early Brahmi characters of the second century B.C., reading *Sihakasa lena* 'the cave of Sihaka', the same record being repeated in white to the right.

In one of the rock-shelters was a full-size drawing of a human figure with a horned head-dress (fig. 21). The face was nicely drawn but the legs were crude. In another shelter there were clear paintings in polychrome (red, white, yellow and green) of flowers and leaves.

31 EARLY SITE IN DISTRICT UJJAIN.—At Rajota, 18 miles west of Ujjain, Shri V. S. Wakankar found a large mound with black-and-red, burnished red and black and late painted wares. On the bank of the Chambal, 3 miles to the north of Rajota, he noticed a chalcolithic site with painted ware.

32. MEDIEVAL SCULPTURES IN DISTRICT VIDISHA.—Shri V. K. Bajpai found a large number of medieval sculptures at Shamsabad, 31 miles to the south-west of Vidisha. Of them, Siva and Parvati, Chaturbhuja-Vishnu, Ganesa, Varaha and Trimurtiwere outstanding specimens.

33. PALAEOLITHS IN DISTRICT VIDISHA.—Shri G. H. Deshpande discovered a few palaeolithic tools in a nullah-tributary of the river Keotan near Gyaraspur.



FIG. 21. ***Bhinyapura : painted human figure***

MAHARASHTRA

34. EARLY SITES IN DISTRICT AHMADNAGAR:—Dr. H. D. Sankalia and Shri Z. D. Ansari of the Deccan College Post-graduate and Research Institute, Poona, discovered black-and-red pottery of the early historical period (fig. 22) on a mound overlooking the river Pravara at Mahenduri, 4 miles to the west of Akola. Another mound further wes tyielded, right on the natural black soil, black-and-red ware with graffiti in shapes quite different from

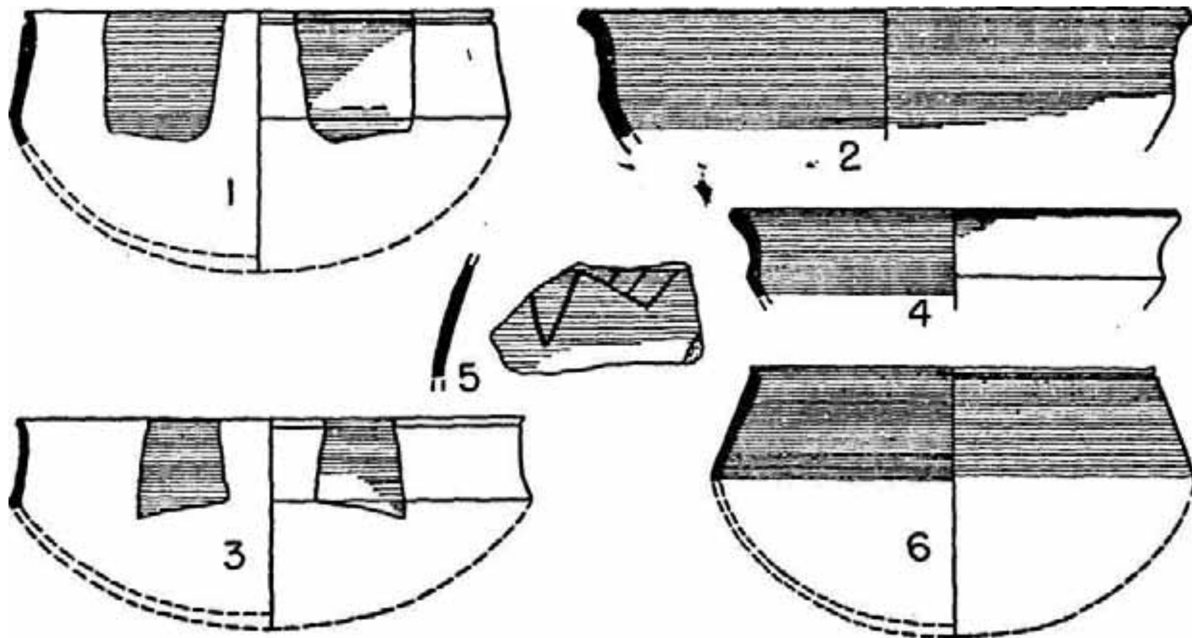


FIG. 22. ***Mahenduri: black-and-red ware,*** **(1/3)**

those of the early historical specimens but resembling those from Tekwada *(1956-57,* p. 18), assigned to Period IB of Bahal *(1956-57,* p. 17).

35. STONE TOOLS IN DISTRICT BHANDARA.—Shri A. V. Krishnamurthy found nine sites, all located in the middle course of the Wainganga river, yielding tools of Series II. The sites were: Bhandara, Betala, Chargaon, Dhorwada, Khamri, Kothurna, Mandwi, Panjra and Takri.

36. MEGALITH IN DISTRICT CHANDA.—Shri L. K. Srivastava noticed two megalithic stone circles at Sindhla in Chanda Tahsil.

37. TEMPLES IN DISTRICT CHANDA.-Shri L. K. Srivastava discovered at Ghanta-Chowki in Chanda Tahsil, in the midst of thick jungle, a stone temple with fine sculptures ascribable to the eleventh-twelfth centuries, similar in style and execution to the temples of Markanda.

At the outskirts of Bhandak in Warora Tahsil, Shri Srivastava noticed the remains of a Jaina temple. Amidst the ruins was a graceful image of Ambika (pl. LX B), a huge image of Kubera (pl. LX C) and a statue of a *jina*. On stylistic grounds, the images were assignable to the seventh-eighth centuries.

38. STONE TOOLS AND MEGALITHS IN DISTRICT NAGPUR.—The Excavations Branch of the Department found tools of Series II on chalcedony, chert and jasper near the village Wardhamna on the Nagpur-Amraoti road. The objects represented were cores, flakes, points and scrapers.

On information from Dr. S. C. Sinha of the Department of Anthropology, Shri S. R. Rao explored a megalithic site adjacent to the village Durgamna on the Nagpur-Amraoti road. The megalithic types comprised stone circles and small tumuli without any lithic appendage.

39. MICROLITHS IN DISTRICT POONA.—Shri V. Mishra discovered microlithic sites at Mahagaon and Donge on the banks of the Pravara and Mutha in Poona District. They yielded microlithic implements comprising blades, scrapers, etc., along with cores of chalcedony and chert, but no pottery.

Shri V. B. Mathadhikari found a few microlithic scrapers of chalcedony and chert at the top of the hill with the fort of Lohgad.

40. MICROLITHS IN DISTRICT WEST KHANDESH.—Shri V. Mishra collected microliths, including cores, near the recently-discovered Jaina caves at Mohida-tarf-haveli on the Gomai *(1958-59,* p. 71).

MYSORE

41. MICROLITHIC SITES IN DISTRICT BANGALORE.—Shri B. K. Gururaja Rao found two sites with microliths but without pottery at Soodasandra and Siddapur on the Bangalore-Sarjapur road. The tools comprised lunates, trapezes and scrapers of quartz and rock-crystal.

42. NEOLITHIC SITE IN DISTRICT BELLARY.-Shri B. K. Gururaja Rao came across a neolithic site at Hulakundi, from where Bruce Foote had reported neolithic grinding-grooves. A scraper worked all over and ground, an incompletely-worked crude axe and a few half-worked implements were found here.

43. PREHISTORIC CAVE IN DISTRICT BUAPUR.—A cave, 70 ft. long, 60 ft. wide and 15 ft. high, at Shidalphadi near Badami, already known for its inscriptions and painted records *(1955-56,* p. 31), was re-examined by the South-western Circle of the Department. It was noticed that the cave had paintings in white and the pecked figure of a bull on a huge loose boulder outside the cave. A few quartzite tools of Series I and II and a stone barrel-shaped bead were found in the cave and its surroundings. The floor of the cave had a depositional debris, 6 to 7 ft. thick.

44. SCULPTURES IN DISTRICT BUAPUR.—Shri A. Sundara found a large number of sculptures of Vishnu, Siva-Parvati, Virabhadra, Maha-Kali, Kala-Bhairava, Surya, Mahishamardini, Naga-raja, *sapta-matrikas* and Ganapati and *virakkals* and *maha-sati* stones at different places in the District. A unique sculpture of Vishnu, of about the fifteenth century, was found at Almel.

45. MEGALITHIC SITE IN DISTRICT CHITALDRUG.—Shri B. K. Gururaja Rao found a disturbed cist-burial surrounded by a stone circle on a laterite debris at Talya. A few sherds of the megalithic Black-and-red Ware were also picked up.

46. GANGA TEMPLE IN DISTRICT MYSORE.—The Director of Archaeology, Mysore State, discovered at Bannur a temple, known as the Hanumantesvara, one of the earliest temples in the State. Its earlier portions went back to the Ganga period. Another monument at the place was the Kailasesvara temple. Both the temples were in the Dravidian style.

47. MEGALITHIC AND MEDIEVAL SITES IN DISTRICT MYSORE.—Shri Gururaja Rao and Shri C. Krishnamurthy discovered the megalithic Black-and-red Ware and a single sherd of the neolithic burnished grey ware at Budithittu. There were also fragmentary stone inscriptions in Kanarese and Tamil.

A habitation-site of the medieval period, was found at Haralukote near Chamaraja-nagar. At the same place, a temple dedicated to Vishnu with a subsidiary shrine for his consort was found to contain some inscriptions in Kanarese and Tamil.

48. VIJAYANAGARA TEMPLE IN DISTRICT TUMKUR.—The Director of Archaeology, Mysore State, brought on record a late Vijayanagara temple at Bebbur, tnown as the Varadaraja. Its platform and pillars were elaborately carved with rows of figures and other sculptures resembling those on the Mahanav rnidibba and a few other temples at Hampi.

ORISSA

49. BRAHMANICAL REMAINS IN DISTRICT CUTTACK.—The Superintendent of Archaeology and Museums, Orissa State, found medieval Brahmanical temples and images in the Dharmasala-Madhupur area, the more important of them being the following: (i) a 6-ft.high image of standing Vishnu near Madhupur; (ii) an image of Krishna with ten in-carnations of Vishnu around; (iii) two images of Manasa near Deuli; (iv) images of Nara-simha, Varaha and Trivikrama near Dharmasala; (v) an image of Vishnu at Tank near Singhpur; (vi) an image of Surya-Narayana near Dharmasala; and (vii) a temple, with carvings resembling those of the Muktesvara temple at. Bhubaneswar, having an image of Krishna inside, at Pratappur.

50. BUDDHIST SITES IN DISTRICT CUTTACK.-The Superintendent of Archaeology and Museums, Orissa State, found two Buddhist sites, respectively at Vajragiri and Rama-giri. There were Buddhist images and remnants of brick structures.

51. MEDIEVAL TEMPLE IN DISTRICT KEONJHAR.-A beautiful image of Vishnu was found at Sainkul by the Superintendent of Archaeology and Museums, Orissa State.

PANJAB

52. STONE AGE SITES IN DISTRICT AMBALA.-Dr. A. P. Khatri came across a few pebbles with apparent bulbs of percussion near Nadia, on the opposite side of the Chandigarh lake. Continuing his search upwards, he found in a nullah along the road not far from Pinjaur, pebble tools very much resembling the Early Sohan. The conglomerate-zone on the other side of the lake yielded a few molars.

53. TEMPLE IN DISTRICT AMBALA.-A ruined medieval temple at Masyun was reported by Shri Balbir Singh and was later on inspected by Shri R. P. Das. There were damaged sculptures and two mutilated inscribed slabs datable to the eighth-tenth centuries.

54. SCULPTURES IN DISTRICT ROHTAK.-In a monastery of the Nath sect to the north of a large pre-medieval mound at Astalbohr, 3 miles to the west of Rohtak, is a collection of sculptures, reported to have been discovered at the village Bohr in the neighbourhood. The sculptures (pls. LX D and LXI) were inspected by Dr. Y. D. Sharma, who noticed images of Balarama, Vishnu and Ganesa and Santinatha, Parsvanatha, Chakresvari and other Jaina deities.

RAJASTHAN1

55. JAINA SCULPTURES IN DISTRICT AJMER.-Three sixteenth-century white-stone images, respectively of Rishabhanatha, Sreyamsanatha and Santinatha, were found at Balad in Beawar Police-station.

56. SCULPTURES IN DISTRICT ALWAR.-Clearance of the ruined sites of Naugaza and Kot-ki-Deoli at Garh by the North-western Circle of the Department (p. 100) exposed a part of the original plans of the structures and a number of Jaina and Brahmanical sculptures and panels of dancing figures (pl. LXII). One of them, a seated image of Mahavira, was dated in *samvat* 1203. An inscription dated in *samvat* 919 was also discovered.

57. MICROLITHS IN DISTRICT CHITORGARH.-Shri K. V. Soundara Raian discovered a microlithic site, presumably of chalcolithic affiliation, near Jawanpura on the bank of the river Deo between Champaner and Desar. The industry was on agate chert and chalcedony and comprised fluted cores, scrapers and blades.

58. BUDDHIST SCULPTURE IN DISTRICT BHARATPUR.-A spotted red-sandstone sculpture of early Kushan date, depicting four Maitreyas, was found at Noh.

59. SCULPTURES IN DISTRICT JAIPUR.-Of the number of medieval sculptures found in the District.mention may be made of the following: a Jaina-statue with a four-line inscription from Amber; sculptures from Bhandarej; and a *mithuna*-sculpture from Sainthali.

60. JAINA SCULPTURES IN DISTRICT NAGAUR.-Four Jaina *tirthankara*-images were found at Merta.

61. VISHNU-IMAGE IN 'DISTRICT JODHPUR.—Shri N. M. Ganam found near Bhatclai a tenth-century sculpture, 8 ft. 11 in. long and 3 ft. 10 in. wide, of Seshasayi-Vishnu, similar to the sculpture from Badoli, now in the Kotah Museum.

UTTAR PRADESH

62. PAINTED GREY WARE IN DISTRICT AGRA.—Shri J. P. Gupta found the Painted Grey Ware at Akhbai, Beman, Geherra-khurd, Karahra and Mahuwar.

63. ROCK-SHELTERS IN DISTRICT AGRA.—Shri J. P. Gupta discovered rock-shelters with paintings near Fatehpur-Sikri.

64. PAINTED GREY WARE IN DISTRICT IJNOR.—Shri D. P. Agrawal found the Painted Grey Ware at Khairabad, Khajuri, Jat, Palni-Alinagar, Raipur and Sedhi.

65. GREY WARE IN DISTRICT BULANDSHAHR.—Shri R. C. Sharma reported the Painted Grey Ware and plain grey ware from Acheja, Asawar, Jehra, Katauri, Raipur and Uisara on the Kali-nadi and from Birpur and Ghalibpur in the neighbourhood of the present bed of the Ganga. Grey ware sherds were also discovered at Ghatamwala.

66. EARLY POTTERY IN DISTRICT ETAH.-Shri S. B. Singh brought to light the Painted Grey Ware from Jakhera and Pipargaon. The former site also yielded a sizable number of black-and-red sherds and the latter the Northern Black Polished Ware. The N. B. P. Ware was also discovered at Bhargain.

67. N. B. P. WARE IN DISTRICT GHAZIPUR.—Shri R. G. Pandeya found the Northern Black Polished Ware at Toharganj, Masaondih and Devachandpur.

68. SCULPTURES IN DISTRICT MIRZAPUR.-Dr. K. C. Panigrahi discovered a few sculptures in the late Gupta style at Somrath.

VI. MUSEUMS

1. RAJPUTANA MUSEUM, AJMER.—A fine Jaina head of *circa* eleventh century A. D., with conventional curls and top-knots, found in Baghera, a medieval site 67 miles to the south-east of Ajmer, was received as a present from the Education Department of Ajmer District. In the course of an exploratory tour were collected a broken Lakshmi-Narayana figure and a Brahma image from Junia in District Ajmer and a few busts and torsos of *circa* twelfth century from Keronj near Kekri in the same District. Two gold coins, one a standard type of Samudragupta and the other an archer type of Chandragupta II, were added to the coin-cabinet. The epigraphical exhibits were properly classified and re-arranged. Arrangements were made for an improved display of the important objects.

2. ALLAHABAD MUSEUM, ALLAHABAD.—The Museum acquired, among other objects, fortyeight sculptures, four hundred terracottas, the same number of beads, two hundred clay sealings, one hundred and thirtytwo coins and thirtyseven paintings. Noteworthy among the sculptures were: a Sunga cross-bar with a crocodile-motif from Kausambi (pl. LXIII A); the bust of a *yakshi*-figureof the Kushan period from Ahichchhatra; thirty sculptures of the Mathura school; and an attendant figure and a four-armed Siva-image, respectively of the post-Gupta and medieval periods. The terracottas included some interesting specimens with elaborate head-dresses and coiffures, of the Sunga to Gupta periods, from Jhusi (*1958-59*, p. 76) and Ahichchhatra. Of the two plaques from Ahichchhatra, one showed on one side a male figure supporting a woman, probably drunk, with both his hands and accompanied by a female attendant holding a jar (pl. LXIII B), while the other contained a female figure, now headless, with a dress similar to that of the queens on the gold Gupta coins. The sealings from Jhusi included one of the Mauryan period, with only two extant letters, and a large number of others of the Gupta period. Some of the Gupta sealings, with flower, conch and some other symbols, bore such legends as *punyalabha* and *dharmakartavya.*

3. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—All the exhibited antiquities were labelled. A chart showing the development of the Telugu script was introduced.

4. ARCHAEOLOGICAL MUSEUM, AMBER.—A number of sculptures, discovered as a result of exploratory tours undertaken at Abaneri (pl. LXIV A and B) and in Jaipur, Jodhpur, Bikaner and Kotah Districts of Rajasthan, were added to the collection.

5. SHRI BHAVANI MUSEUM AND LIBRARY, AUNDH.—A few Marathi manuscripts, of which the historical papers of the Nimsod-Mayani Gharge family were notable, were received as gifts from Shri Suryajirao Gharge. A grinder, Satavahana coins, copper coins of later periods and a stone, with a *yoni* and a bull carved thereon, were among the antiquities received as gifts. A number of potsherds and other antiquities were collected from the sites around Aundh.

6. GOVERNMENT MUSEUM, BANGALORE.-Three Jaina heads and a headless Jaina image, all of marble, from Sravanabelgola, District Hassan *(1958-59* p. 106), were received from the Director General of Archaeology in India.

7. MUSEUM AND PICTURE-GALLERY, BARODA.-Eight sculptures, including one of Indrani (pl. LXIVC), were collected from different places in Banaskantha District.

A beautiful red-stone pair of *ganas,* attributable to the Gupta period, from Choumukha in District Panna, and four bronzes, two of them belonging to the Akota hoard, were purchased.

8. MUSEUM, BELKHANDI.—With financial assistance from the Government of India, a museum-shed was constructed at Belkhandi in Kalahandi District.

9. STATE MUSEUM, BHARATPUR.—The following, among others, were the import ant acquisitions: thirtyfive paintings of different schools, of which twenty were oval-shaped, depicting some of the incarnations of Vishnu and Krishna-lila scenes, of the early nineteenth century; eighteen colour-printed miniature portraits of the rulers of almost all the former States of Rajasthan; a painting of Thakur Churaman, the founder of the Jat principality ; and ten Gupta gold coins of the Bayana hoard, purchased from H. H. the Maharaja of Bharatpur.

10. ARCHAEOLOGICAL MUSEUM, BODH-GAYA.—Among the acquisitions were one hundred and ninetythree stone sculptures and sculptured pieces. Two well-designed wooden pedestals were introduced for better display.

11. STATE MUSEUM, BHUBANESWAR.—The collection was enriched by the acquisition of a large number of palm-leaf manuscripts received as presents from the Raja of Madhupur. Kumar Bidyadhar Singh Deo of Jaypur presented to the Museum his entire collection of exhibits. Some images were also acquired.

12. KUTCH MUSEUM, BHUJ.—The exhibits in the Museum were re-arranged. Twcntyfour sculptures from Kutch District were added to the Museum. The other acquisitions included a Gadhaiya coin from Bhadreswar and three silver locks.

13. PRINCE OF WALES MUSEUM OF WESTERN INDIA, BOMBAY.—No additions were made to the archaeological collection, and the main work lay in the re-organization of the galleries and the checking of antiquities. One of the galleries was that of the antiquities from Egypt, Assyria, Iran and other foreign countries. The larger sculptures were exhibited on masonry-benches and the portable ones in show-cases, the arrangement being chronological except when expediency required otherwise.

14. ASUTOSH MUSEUM OF INDIAN ART, CALCUTTA.—Over one thousand anti quities, derived mainly from explorations and excavations, were added to the collection. Chandraketugarh in 24-Parganas, further explored *(1958-59,* p. 77; above, p. 50) by Shri P. C. Das Gupta, Shri P. C. Roy Choudhury, Shri M. K. Pal and Shri S. Mahapatra, yielded more than three hundred early terracottas of interesting varieties and workmanship, besides seals and other antiquities. Special mention may be made of a headless skirted female figure with applique ornaments (pl. LXV A) and a boldly-modelled female head, both of the Mauryan age. The best Sunga examples included an exquisite figure of a prince in *abhanga,* holding a parrot in the right hand (pl. LXV B), a plaque depicting a musician caressing an elephant (pl. LXV C), perhaps illustrating the Udayana story, a fragment showing Kubera (?) on *nara-vahana* (pl. LXV D), flying figures, a plaque probably representing *yakshi* Asvamukhi enticing the Bodhisattva, several *mithuna*-motifs, an *apsaras* with profuse ornamentation and the lower fragment of a plaque depicting Lakshmi or Sri emptying a bag of coins. Of the terracottas attributable to the Kushan period, noteworthy were a unique figure of an elephant-god, holding on his lap a dwarf woman (pl. LXV E), a pair of wrestlers and the fragment of a male head intricately attired in a spiked turban.

Also from the Chandraketugarh area Shri M. K. Pal collected a damaged terracotta toy-cart attributable to the Sunga period, perhaps representing Agni flanked by a bearded

male figure and a female riding a chariot drawn by a pair of rams, and a figurine representing a richly-bejewelled young damsel with a lively expression, besides early ivory comb-handles decorated with rosettes, vine and concentric circles.

Of other important antiquities from Chandraketugarh, special mention may be made of a terracotta seal, found by Shri P. C. Das Gupta, with an elephant and a female divinity. It contained inscriptions both in Brahmi and Kharoshthi, the legend in the latter reading *Dhanamitrena.*

Shri D. P. Ghosh collected from Boral, 24-Parganas, a fine terracotta *yakshi*-figure with an elaborate coiffure, accompanied by a crane stretching its neck for the fruit dangling from her hand (pl. LXV F).

Remnants of a wooden structure and sherds of the black-and-red ware and the Northern Black Polished Ware were found about 25 ft. below the surface of a tank to the north-west of Khana-mihirer-dhipi.

Ground hammer-stones, a large number of beads of semi-precious stones and unins-cribed cast coins of copper were collected from Harinarayanpur, also in 24-Parganas. Again, Sunga terracottas were found at Atghara in the vicinity of Calcutta. From Malikapura, a newly-explored site on the bank of the Lavanyavati, near Barrackpore, 20 miles to the north of Calcutta, Shri P. C. Das Gupta collected the N. B. P. Ware, grey ware and early terra-cotta figurines.

Shri M. K. Pal collected two large stone sculptures of iconographical significance, viz. a black stone image of Vishnu-Dattatreya flanked by two small figures of Siva and Brahma, carved over the heads of Lakshmi and Sarasvati respectively *(circa* twelfth century), from Kaikala, District Hooghly (pl. LXVI A), and a magnificent inscribed image in yellow sandstone of a twelve-handed Vishnu-Lokesvara with a canopy of *nagas (circa* tenth century) from Sardanga, District Burdwan (pl. LXVI B). A stone bull, carved in the round, belonging to about the eighth century, was collected by Shri Gourmohan Ganguly from Kariya in District Murshidabad.

From Baroda, Shri D.. P. Ghosh acquired a standing four-handed bronze figure of Parvati, a Gujarati work of *circa* eleventh century (pl. LXVI C). Another notable addition was a brass Durga-Mahishamardini in the primitive style, from Bengal.

The Museum secured through purchase a collection of wood sculptures of the late medieval period, including an oblong painted panel of a *ratha* showing an animated hunting-scene with hunters riding horses and elephants attacking tigers and other wild animals, supported at the base by a *mithuna,* from Bengal, and a horizontal perforated panel repre-senting a lively and crowded composition of deities with Siva-Parvati in the centre, from Mysore, besides some fine specimens of *yali*-brackets from south India. A pair of painted wooden door-leaves of a small shrine depicting a *nayika* and a temple-hanging representing *goshtha-lila* with applique work, in the eighteenth-century Udaipur style, were among the other notable objects.

15. INDIAN MUSEUM, CALCUTTA.—The collection of the Archaeological Section of the Indian Museum was enriched by the acquisition of a large number of antiquities. Of them, special mention may be made of two hundred and fifteen lithic tools, including neolithic celts, hammerstones, chisels, etc., from Paklihal and other places in Districts Raichur and Bellary (pl. LXVII A) and microliths from Kondapur, District Medak (pl. LXVII B). Other noteworthy acquisitions included four terracottas of Sunga and Kushan dates from Chandraketugarh in 24-Parganas (also p. 77), a stone image of Chandi of medieval date from Bogra m East Pakistan (pl. LXVIII A) and an Arabic inscrip-tion on stone of Sultan Alau d-Din Husain Shah of Bengal (1493-1519) from District Hooghly besides a Nepalese banner of the sixteenth century, showing Buddha in *bhumisparsa-mudra*

(pl. LXVIII B), and three Sanskrit manuscripts of the *Ramayana,* the *Padma-purana* and the *Prajnaparamita* all of medieval age. Seven hundred and twentynine coins—seven gold, fortysix silver and six hundred and seventysix copper, billon, brass and nickel pieces-were added to the coin-cabinet.

The work of modernization of the galleries continued (*958-59,* p. 78). In the Entrance Hall the masonry-pedestals of sculptures were encased with polished teakwood veneering and two Bharhut sculptures were set up in illuminated niches framed with teak-ply veneering in the form of *chaitya*-arches (pl. LXDC A). A plaster-cast of the Rampurwa Bull, the original of which is now in the Rashtrapati Bhawan.New Delhi, was set up on a suitable pedestal with polished teakwood veneering. Two maps, respectively showing the extent of Asoka's empire and the centres of Mauryan art and architecture, were also introduced.

On the walls of the main stair-cases leading to the first floor were displayed fifty suitably-framed photographs of masterpieces of Indian art, received from the Director General of Archaeology through the Ministry of Scientific Research and Cultural Affairs.

In the Gandhara Gallery the previous display of sculptures fixed on expanded-metal background was discarded. Some of the show-cases were remodelled into a series of well-lighted compartments with a coloured masonite background (pl. LXX), and the sculptures were re-arranged on brackets and pedestals to tell the story of Buddha's life and the growth of the Buddhist pantheon.

In the Prehistory Gallery the masonry-benches displaying stone inscriptions were dismantled with a view to devoting the whole of the gallery to prehistory and protohistory. A separate Inscriptions Gallery is being organized on the verandahs of the first floor. In continua-tion of the previous year's work *(1958-59,* p. 78), three additional wall-cases were remodelled to display the palaeolithic cultures of different regions. One of them was devoted to a compara-tive study of the palaeolithic cultures of Europe, Asia and Africa, another to the display of the palaeolithic industries of Madras and Jabalpur and the third to the correlation of Pleisto-cene geology and prehistoric archaeology in the Indo-Pakistan sub-continent, with special reference to the De Terra collection. All the three show-cases were provided with maps, charts, illustrations and trilingual labels for the easy understanding of the original specimens exhibited therein (pl. LXDC B). A miniature replica of a megalithic pit-burial from Kunnattur, District Chingleput, was also introduced.

16. BHURI SINGH MUSEUM, CHAMBA.—Noteworthy among the acquisitions was a carved wooden door (mid-seventeenth century) from Bharmour (ancient Brahmapura), the old capital of the erstwhile Chamba State. The cataloguing of the Sanskrit manuscripts in the "Museum was taken in hand.

17. CHANDRADHARI MUSEUM, DARBHANGA.—Noteworthy among the stone sculptures collected from different sites were an image of Buddha in meditation (ninth century) from Jarhatia, an inscribed pillar with an image of Durga carved at its foot *(circa* tenth century) from Hati and an image of Ganesa from Kisanipatti, all in District Darbhanga. Further, three Ganesa images *(circa* eleventh century), an image of Siva-Parvati and another of Surya (medieval period) and two *stupas* with Buddha-figures from south Bihar were acquired through purchase.

An ancient sword from Ferojgarh in District Darbhanga, palm-leaf manuscripts from Mithila, a copper figure of the eighteenth century, a Banarasi *shikargah* cloth and a gilded box of the nineteenth century were among the other acquisitions.

18. ARCHAEOLOGICAL MUSEUM, RED FQRT, DELHI.—Arms, pottery, textiles and coins were displayed in remodelled show-cases with suitable background and labels. Some masonry-pedestals were replaced by polished wooden ones.

19. CENTRAL ARCHAEOLOGICAL MUSEUM, GWALIOR.—A few pieces of pottery from the excavation at Bhanpura and seventyfive locally-purchased copper coins were added to the collection. With financial help from the Government of India, a new gallery for excavated antiquities was started. A number of paintings were framed and exhi-bited.

20. STATE MUSEUM, GAUHATI.—A copper-plate inscription of Ratnapalavarma-deva *(circa* tenth-eleventh century), found in Choratbari in District Nowgong, was acquired. A notable addition was a scroll depicting the *Ramayana* episode. The exhibits were properly arranged, cleaned and labelled.

21. ARCHAEOLOGICAL MUSEUM, HAMPI.—A number of copper coins were presented by local people, while a copper-plate grant was purchased.

22. CENTRAL MUSEUM, INDORE.—Two small images of Mahishasura-mardini and Lakshmi-Narayana, four sketches, a gold coin of Narasimhagupta and a silver Macca-Madina rupee were acquired.

23. CENTRAL MUSEUM, JAIPUR.-Ten miniature paintings of the eighteenth-century, eight pieces of textiles and costumes, three female figures of ivory and a wooden swing, the latter two items representing Rajasthani art, were added to the collection.

24. SARDAR MUSEUM, JODHPUR.-TWO manuscripts, five wooden panels depicting dancing girls and miscellaneous paintings with both secular and mythological themes were acquired. Of the secular paintings, mention may be made of those showing Akhji on camelback, Sher Singh on horseback, Maharaja Bhim Singhji of Jodhpur and a prince on horseback. The mythological paintings included scenes like Gajendra-moksha, Krishna and Balarama with cows, Radha and Krishna, twenty incarnations of Vishnu, etc.

25. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—The sculptures in the central pavilion and its surroundings were re-arranged in the fashion of a temple, while the space along the compound-walls was utilized to form an iconographic gallery.

26. ARCHAEOLOGICAL MUSEUM, KOLHAPUR.-A Gaja-Lakshmi image from Yelne in Shaliuvvadi Taluk, two *sati*-stones from village Babireshwar in Karvir Taluk and nine sculp-tures, including carved ceiling, lotus-pendants, memorial-stones, a Siva-*linga*, etc., from the premises of the Mahalakshmi temple, Kolhapur, were among the important acquisitions. Three large metal sculptures were received from the Collector, Kolhapur.

27. ARCHAEOLOGICAL MUSEUM, KONDAPUR.—Improvement was effected in the display by the provision of well-designed wall-cases with suitable backgrounds and labels The collection was enriched by the addition of fifty microliths, three neoliths and one copper and four lead coins of the Satavahana rulers from the Kondapur site.

28. FORT ST. GEORGE MUSEUM, MADRAS.-The acquisitions included coins, postage-stamps, porcelains and records of the Indo-British period, of which two treaties, respectively between the Governor of Madras and the Raja of Tanjore and between the East India Company and the Nawab of the Carnatic, were of special interest.

29. GOVERNMENT MUSEUM, MADRAS.-Ten metal images were acquired as treasure-trove finds. The other acquisitions included seventeen stone sculptures, two copper-plate grants, fortytwo paintings and forty miscellaneous objects. Noteworthy were a bronze image of Parvati and a stone sculpture of Virabhadra. Of the two copper-plate grants one throws light at certain aspects of the Pandyan history.

30. MUSEUM, DEPARTMENT OF ARCHAEOLOGY, MYSORE.—Twentyfour gold coins, three gold ornaments and a silver receptacle from Brahmipura, seventyseven silver coins from Ratkal in District Gulbarga, and a copper-plate of the Hoysala king Narasimha III, discovered at Turuvekere in District Tumkur, were acquired. Pottery found in the megalithic field at Bannighatta, District Bijapur, was displayed.

31. ARCHAEOLOGICAL MUSEUM, NALANDA.—Two wall-cases were remodelled with interior lighting and a suitable background for the display of antiquities. Three maps to illustrate the travels of Hiuen Tsang and I-tsing and the sites of Gupta art in India were displayed in the gallery.

32. NATIONAL MUSEUM, NEW DELHI.—Three dozen bronzes from Nalanda, along with a large number of copper-plate grants, were added to the exhibited collection. A noteworthy addition was a collection of four hundred and ninetythree sculptures of Pallava, Chola and Vijayanagara periods (pl. LXXI). Out of these one hundred and forty sculptures were placed on brick-pedestals along the walks in the compound of the office of the Department of Archaeology, thus forming an open-air exhibition (pl. LXXII) Arrangements are in hand to provide them with suitable bilingual labels.

The work of card-indexing of the archaeological objects was taken in hand.

Progress was made in the implementation of schemes to set up the galleries in the new building of the Museum on Janpath. Charts showing the development of *stupa*, *chaitya* and other aspects of Indian architecture were prepared for display in the new galleries of the Museum. Designs of various types of show-cases were also prepared. The preparation of illuminated glass transparencies showing the story of Indian coins, scripts and iconography was continued.

33. PATNA MUSEUM, PATNA.—Seventyone antiquities were acquired. Noteworthy among them were three images, one each of Vishnu, Siva-Parvati and six-armed Lokesvara, a door-jamb with the figures of Ganga and Yamuna (Pala-Sena period) and eight *stupas*, all of stone; one copper vessel; three pieces of the Northern Black Polished Ware with silvery lustre; and seven gold objects, viz. a standing female figure in repousse, a ring, a nose-ornament with ornamental design, an ear-ring, a neck ornament and two pieces of chain. The pottery-pieces and gold objects had been discovered in the course of the digging of a well at Sultanganj in District Bhagalpur.

The additions to the coin-cabinet included gold coins, of which one was of Vasudeva Kushan, four of Samudragupta and two of Kumaragupta.

34. WATSON MUSEUM, RAJKOT.-The classification of Muslim coins was kept in progress.

35. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF SAUGOR, SAGAR.—The acquisitions incjuded palaeoliths and microliths from different sites in Madhya Pradesh, a life-size stone image of Ardhanarisvara of the late Gupta period, an image of Vishnu with Lakshmi and Bhu-devi, a statue of Pingala from Unchchra, a Gupta male figure from Nachna in District Panna, a few pieces from Bharhut in District Satna and several medieval sculptures from Sagar District. An inscribed *tirthankara*-statue of the twelfth century from Tripuri, District Jabalpur, and plaster-casts of some antiquities, presented by the Curator, Archaeological Museum, Mathura, were among the other acquisitions. To the coin-cabinet were added coins from Vidisa, Eran in District Sagar and different sites in Uttar Pradesh.

36. ARCHAEOLOGICAL MUSEUM, SANCHI.—The smaller antiquities were re-arranged chronologically after a careful classification.

37. ARCHAEOLOGICAL MUSEUM, SARNATH.—The Gupta and Medieval Galleries were re-arranged. The masonry-pedestals in the north-eastern verandah were replaced by polished wooden pedestals. Well-designed show-cases and pedestals were constructed for the display of other objects.

38. TIPU SULTAN MUSEUM, SRIRANGAPATNA.—This Museum, located in the Darya-Daulat Bagh, the summer-palace of Tipu Sultan, was opened on the 25th December, 1959. Besides some relics and belongings of Hyder Ali and Tipu Sultan brought from the Fort St. George Museum, Madras, the Museum acquired a large number of copper, silver and gold coins. A copper war-medal commemorating the Fall of Seringapatam was presented to the Museum by Shri S. T. Srinivasagopalachari of Madras.

In arranging the display great care had to be taken not to disturb the paintings on the walls and ceiling of this building, which is a monument of national importance.

39. VICTORIA HALL MUSEUM, UDAIPUR.-A number of sculptures, paintings, coins and epigraphs were added to the collection. Noteworthy among the sculptures were a Mahishasura-mardini plaque (sixth-seventh century) from Kalyanpur, a Balarama image from Rasmi, a marriage-scene of Siva-Parvati and a Mahishasura-mardini from Unwas.

40. BHARAT KALA BHAWAN, VARANASI.-The total collection during the year was two hundred and fortyone terracottas, four sculptures, thirtythree miscellaneous objects and two hundred and fortyseven coins, including thirteen gold and one hundred and fiftynine silver punch-marked ones. One of the interesting sculptures was a Bharhut railing-stone with a medallion on both the sides. The subject-matter on the obverse, as indicated by an inscription, is the Timi-timingala-jataka.

VII. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Northern Region of the Temple-survey Project of the Department, under Shri Krishna Deva, continued the survey of the early temples of north India, dating from *circa* 400 to 800. More than twenty flat-roofed stone shrines with simple ornamentations were located in Uttar Pradesh in the Lalitpur area of Jhansi District and in Madhya Pradesh at the sites of Ramgarh, Chhapara, Bodoh and Pathari in Vidisha District, at Mahua in Shivpuri District, at Makanganj in Mandasor District, at Shankargarh in Satna District and at Kundalpur in Damoh District. Belonging to the late Gupta period, these shrines provide the link between the Gupta and Pratihara styles of temple-architecture. The extensive ruins and surviving architectural fragments of the early and late Gupta periods at the well-known sites of Sarnath, Sravasti, Mathura, Bhita and Garhwa in Uttar Pradesh and of Nachna in Madhya Pradesh were also studied with a view to compiling material on the Gupta architectural motifs for the proposed monograph on the early temples of north India.

With the recent survey of the important groups of temples at Kadwaha (pl. LXXIII), Ranod, Indor, Terahi and Mahua in Guna and Shivpuri Districts, at Kakpur, Badoh and Pathari in Vidisha District, at Badnawar in Ujjain District, at Nemawar (pl. LXXIV) in Dewas District and at Deogarh and Dudhai in Jhansi District, the study of the central Indian temples has reached a stage when their classification and affiliation can be determined with a degree of accuracy. It is now possible to assign the group of Jaina temples at Deogarh and the fine but dilapidated Siva temple at Indor to the Pratihara style.

The distinctive group of brick temples in Kanpur and Fatehpur Districts of Uttar Pradesh was also included in the survey. A comparative study of these with the brick temples in the Chhattisgarh area and with similar stone temples at Masaun and Chandrehe in Rewa and Sidhi Districts of Madhya Pradesh is in hand.

A preliminary survey was also made of the celebrated temples at Bhubaneswar in Orissa with particular emphasis on the temples of the earlier group, which bear striking affi-nities to the contemporary temples in other parts of India.

2. SOUTHERN REGION.—The survey of cave-temples in the Pandya and Kerala areas was continued by the Southern Region of the Project, under Shri K. R. Srinivasan, and nine more cave-temples were examined in Districts Tirunelveli and Kanyakumari in Madras State and in Trivandrum District of Kerala State. The cave-temples of Pandya origin conform largely to the description previously given (*1958-59*, p. 81). In addition to what has been stated about their iconographic content, the general absence of the Somaskanda panel on the hind wall of the Siva shrines, except in the case of Tirupparankunram, and the presence of a rock-cut *linga* in the sanctum (in a few cases rock-cut Nandi also in the *ardha-mandapa),* seem to be other characteristics of this group of temples. In one or two instances, Siva and Uma alone, seated as Umasahita-murti, are found as sculptures on the hind wall of the shrine. Of these Pandya cave-temples, some are dedicated to Vishnu, for example as Narasimha at Anamalai and as Anantasayi at Tiruttangal. A cave-temple solely dedicated to Subrahmanya is the Ladan-koil of Anamalai (pl. LXXV). Like the Pallava cave-temples of the Mahendra style, these do not have a well-developed *kapota* in front of the facade. The pillars are generally massive and square as in the Pallava examples, but the corbels have a plain bevel and angular profile. In a few cases, the pillars are different, for example at Kudumiyamalai,

where they show the parts of a regular pillar of the order with *kalasa, kumbha,* etc. It is not unusual also to see corbels with *taranga*-mouldings. Some of the temples arc of the simple cell-type without a *mandapa* in front. They seem to have been influenced both by the Pallava and Chalukyan types and mostly date after A.D. 700.

Among the cave-temples surveyed in the north and north-cast of the Pallava country, in what formed the early Chalukyan domain, mention is to be made of the discovery of a series of four cave-temples in Advi-Somanapalli (pl. LXXVI) in Manthani Taluk of Karimnagar District, Andhra Pradesh, about 250 miles north-east of Hyderabad. The Bhokardan cave-temple in Aurangabad District, Maharashtra State, at about the same distance north-west of Hyderabad, noticed by the former Hyderabad Archaeological Department, would deserve mention in this connexion. Both of them seem to be of the same type. An identical inscription in archaic Telugu-Kanada script, reading *utpatti-pidugu,* found in the Bhokardan cave-temple in the north-west Deccan on one side and the Akkanna-Madanna cave-temple at Vijayawada and the Anantasayanagudi cave-temple at Undavalli in the coastal Andhra region on the other seem to connect them with each other.

The remains of the early brick temples recently excavated at Nagarjunakonda and the early temple (Kapotesvara) at Chezarla were surveyed, and the latter was compared with the one at Ter. The examination of the Nagarjunakonda temples revealed interesting details regarding the existence of temple-complexes, consisting of shrines with *ardha*- and *maha-mandapas* in one axial line, *prakara, gopura, dhvaja-stambha,* etc., even in the early days of brick-architecture of the Ikshvakus. One of the temples contained *parivaralayas* with square, octagonal and circular plans, anticipating the later series classified as *Nagara, Dravida* and *Vesara.* The main shrines are apsidal, except in one or two cases where they are square, there being no difference between them and the contemporary apsidal Buddhist *chaityas* attached to the larger *stupas* or monasteries at Nagarjunakonda and other places in the Andhra area, thus indicating that the forms of temples were common to all the creeds. From a closer examination of the Chezarla temple and its environs, including some early inscriptions, it was found that the present Kapotesvara could have been originally one of the apsidai *chaityas* usually found associated with either a monastery or a large *stupa* in these parts of the Krishna valley. The Buddhist association of this temple is already mentioned in previous works.

VIII. ARCHAEOLOGICAL ATLAS

The Archaeological Atlas Branch of the Department has been functioning for the last three years for the preparation of an exhaustive and authentic archaeological atlas of India.

The size of the printed alias will be about 18 x 15 in.; it will include a series of multi-coloured maps, to the scale of 1: 1,00,00,000, which will bring out graphically factual information relating to every significant aspect of Indian archaeology. Each map will be accompanied with annotations, illustrated where necessary. There will be a bibliography on each subject and a comprehensive index of sites.

As the project has registered sufficient progress, its salient features may be given here. There will be about ten general and forty archaeological maps. The procedure adopted is as follows: compilation of data from all available published sources; subject-wise classification of the data; analysis of the sites and their map-wise tabulation; and preparation of exhaustive site- and subject-wise indices. Side by side, the material is being classified according to Districts and States. Information has so far been collected in respect of two thousand and five hundred sites.

After a scrutiny and verification of data and the location of the sites on the Survey of India topographical map-sheets, about three hundred sites have already been plotted on four maps.

In the course of the work, it has been noticed that the discrepancies, shortcomings and inaccuracies in the sources are sometimes so serious that they almost defy assessment and even the proper identification of sites. For different reasons, particularly the lack of a true geographical perspective and negligence of maps, explorers have often given incorrect distances, wrong Districts or Taluks, faulty directions and mistaken references to hills and river-banks. The re-organization of States and redistribution of the boundaries of Districts, the latter not always given wide publicity to, add to the complexity. Nevertheless, all these difficulties are being overcome, and the accurate location of each site is being insisted upon.

In this task, the only maps that can be relied upon are the topographical sheets published by the Survey of India and prepared on the basis of surveys conducted on scientific lines; cadastral or revenue maps are not always so precise.

Ancient names of sites, no longer current but popular in archaeological literature, such as Hastinapura for Hastinapur, Kausambi for Kosam, Tripuri for Tewar and Ujjayini for Ujjain, will be included with their better-known names within brackets; both will appear in the index.

In India, there has been till now no uniformity in the Romanization of place-names: spellings accepted by the Gazetteers, Railways, Posts and Telegraphs and Survey of India for the same place-name are not infrequently at variance with each other; sometimes archaeologists have adopted one of these spellings or none at all and have followed their own spellings. In the midst of this diversity, it has been thought expedient to follow in the atlas the spellings that appear in the maps of Survey of India. The reason is obvious: these maps have a wide circulation; further, this system will have the advantage of conforming to the names adopted by the Permanent Committee on Geographical Names of the Royal Geographical Society. Following this, to quote only a few examples, Navdatoli will be Nauratori, Pattadakal will be Patadkal, Piklihal will be Paklihal and Prakash will be Prakasha.

Further, such archaeological names as Ahichchhatra, Arikamedu, Chandraketugarh and Lothal, which do not appear in the Survey of India maps, will not appear as primary names but will be shown within brackets after the respective nearest place appearing on the map, though both will appear as separate items in the index.

IX. PRESERVATION OF MONUMENTS

MONUMENTS OF NATIONAL IMPORTANCE

CENTRAL CIRCLE

Madhya Pradesh

1. FORT, LANJI, DISTRICT BALAGHAT.—In continuation of the previous year's work (*1958-59,* p. 83), the collapsed portions of the fortification-wall were rebuilt in lime-mortar at four places and the exposed tops of walls made watertight.

2. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—The removal of the pulverized clay-stones from the top of Caves 4, 5 and 6 was continued (*1958-59,* p. 84).

3. LAT-KI-MASJID, DHAR.—The construction of a masonry platform was started in order to place the pieces of the iron pillar over it. The work is in progress.

4. GROUP OF MONUMENTS, MANDU, DISTRICT DHAR.—Removal of debris from Baz Bahadur's palace was continued (*1958-59*, p. 84). The exposed surfaces of the walls were rendered watertight; the work is still in progress. The cupolas and terrace of Jami'-Masjid were rendered watertight. Extensive clearance of rank vegetation was undertaken and approach-roads to individual monuments reconditioned.

5. FORT, ATER, DISTRICT GUNA.—All rank vegetation was removed and the leaky roof was rendered watertight by grouting.

6. MONUMENTS, BUDHI-CHANDERI, DISTRICT GUNA.—Debris was removed from the precincts and loose sculptures were collected and kept properly.

7. GROUP OF MONUMENTS, CHANDERI, DISTRICT GUNA.—Debris was removed from the monuments, the collapsed portions of the walls were rebuilt and the roof of the structures was rendered watertight.

8. TOMB OF ABUL FAZL, ANTRI, DISTRICT GWALIOR.—The platform was rendered watertight with lime-concrete and the ironwork was painted.

9. GROUP OF MONUMENTS, FORT, GWALIOR.—After the removal of the decayed lime-concrete from the roof of the Chaturbhuja temple, fresh concrete was laid. The damaged stone slabs of the platform were replaced by new ones. The old electrical fittings inside the Man-mandir palace were replaced and suitable direction notice-boards provided. The collapsed masonry platform of the rock-cut Jaina colossi was restored and the debris removed. The area inside the compound of the tomb of Muhammad Ghaus was cleared of jungle-growth and the undulating area levelled. The ironwork was painted and the garden maintained.

10. MUGHUL FORT, JOGA, DISTRICT HOSHANGABAD.-An extensive clearance of jungle and the removal of vegetation from the fort-walls were undertaken from the fort-area Accumulated silt was removed from the passage leading to the river on the northern side.

11. ADAMGARH ROCK-PAINTINGS, K.ALMARHI, DISTRICT HOSHANGABAD.— The approach-road leading to the rock-shelters was repaired by levelling, dressing and spreading of *morum*. Stone kerbing was provided on both sides of the road.

12. CAVES AND ROCK-SHELTERS, PACHMARHI, DISTRICT HOSHANGABAD.— Rank vegetation was removed and the approach-roads were, reconditioned.

13. BRAHMANICAL ROCK-CUT TEMPLE, DHAMNAR, DISTRICT MANDASOR.— In continuation of the previous year's work (*1958-59*, p. 85), boulders and pulverized portions of the fallen rock were removed from the pathways and the drains were improved.

14. BUDDHIST ROCK-CUT CAVES, DHAMNAR, DISTRICT MANDASOR.—The floor of the caves was exposed by the clearance of silt-deposit and the top of the caves cleared of all porous material.

15. NAVTORAN TEMPLE, KHOR, DISTRICT MANDASOR.—Debris was removed from around the temple.

16. GROUP OF TEMPLES, NARESWAR, DISTRICT MORENA.—The broken lintels were replaced and the collapsed portions of walls rebuilt in masonry.

17. FORT, ASIRGARH, DISTRICT NIMAR (EAST).—The approach-paths inside the fort were reconditioned by the spreading of *morum* and rank vegetation was removed.

18. BIBI SAHIB'S MOSQUE, BURHANPUR, DISTRICT NIMAR (EAST).—The work of replacing the carved veneer-stones was continued *(1958-59*, p. 85); the stones at the base of the newel was replaced by reinforced concrete.

19. FORT, RAISEN.—The fort-walls were cleared of rank vegetation. The damaged steps and the parapet-wall of the Moti tank were rebuilt in lime-mortar. The joints of the flagstones of the courtyard were recess-pointed. The pathways were improved by a spread of *morum*.

20. GROUP OF MONUMENTS, SANCHI, DISTRICT RAISEN.—The work of grouting at Stupa 1 was continued (*1958-59*, p. 86). The approach-road from the 'Begging Bowl' to the road leading to Stupa 1 was paved with flagstones. The ancient road on the southern side of Monastery 51 was restored and *morum* was spread over other paths.

21. TEMPLES, ASHTA, DISTRICT SEONI.—Rank vegetation was removed, and scattered stones within the compound were collected and stacked.

22. MONUMENTS, SURWAYA, DISTRICT' SH1VPURI.—*Morum* was spread over approach-paths and debris was removed from the monuments. The damaged portions of the walls were rebuilt in masonry.

23. HELIODOROS PILLAR, BESNAGAR, DISTRICT VIDISHA.—Two modern stone platforms near the pillar were dismantled.

24. BUDDHIST STUPA, GYARASPUR, DISTRICT VIDISHA.—The approach-road from the village to the *stupa* was reconditioned by levelling and dressing for the length of a mile. The collapsed portions of the *stupa* were restored and the top-surface rendered watertight. Rank vegetation was removed from around the *stupa*.

25. ROCK-CUT CAVES, UDAIGIRI, DISTRICT VIDISHA.—A rock-cut drain was provided on the top of Cave 5. The cracks in the walls and tops of the caves were filled up with suitably-coloured cement-concrete to stop percolation of water and the open joints in the masonry of the stepped approach-road were filled up with cement-mortar. The

road leading to Cave 1 from Cave 12 was reconditioned by levelling, dressing and spreading of *morum.*

26. VUAYA-MANDAL MOSQUE, VIDISHA.—Debris mixed with huge boulders was removed from the south side of the mosque and the plinth of the ancient structure exposed.

Maharashtra

27. BHONSLA NAGARKHANA, NAGPUR.—The decayed lime-concrete of the floor of one of the rooms attached to the gateway was removed and fresh concrete laid.

28. REMAINS OF VISHNU SHRINE, RAMTEK, DISTRICT NAGPUR.—In continuation of the previous year's work *(1958-59,* p. 83), further repairs were undertaken to the masonry wall surrounding the platform to arrest the collapse of the superstructure. The approach-road was pitched with dry stones and the ironwork painted to arrest rusting.

Rajasthan

29. BUDDHIST ROCK-CUT CAVES, BINAYAGA, DISTRICT JHALAWAR.—The thick growth of vegetation in front of the caves was cleared and the porous and loose material removed from the top of the caves.

30. BUDDHIST CAVES, KOLVI, DISTRICT JHALAWAR.—The deposit of silt was cleared from the floor of the caves.

31. KARNESVARA-MAHADEVA TEMPLE, KANSWA, DISTRICT KOTA.—The sunk flagstones of the pavement were removed and re-laid properly and the missing ones were replaced. The damaged compound-wall towards the riverside was dismantled and rebuilt.

EASTERN CIRCLE

Assam

32. RUINS OF FORT, DIMAPUR, DISTRICT NAGA HILLS.—The areas around the gateway and the monoliths were cleared of vegetation.

33. AHOM RAJA'S PALACE, GARHGAON, DISTRICT SIBSAGAR.—The ornamental pilasters at the north-east and north-west corners of the second floor were partially rebuilt in close imitation of the surviving ornamental patterns.

34. GHANASYAM'S HOUSE, JOYSAGAR, DISTRICT SIBSAGAR.—The missing brickwork of the south-east and south-west corners of the main building was restored, reproducing the ornamental mouldings and projected string-courses. The pilasters at the north-east and north-west corners were reconstructed. The arches of the outhouse, its entire southern wall and a small portion of the compound-wall were rebuilt after the original. The missing portions of the parapet, cornice and the mouldings near the cornice of the gateway were reproduced.

35. KARENGHAR PALACE, JOYSAGAR, DISTRICT SIBSAGAR.—The overhanging portions of the compound-wall in front of the palace, with large-patches of brickwork

missing near the base, were underpinned; the decayed brickwork was replaced, open joints filled and the edges of plaster secured by filleting.

36. RANGHAR PAVILION, JOYSAGAR, DISTRICT SIBSAGAR.—The spongy concrete of the terrace immediately above the eaves on the southern side was renewed after the necessary repairs to the brickwork.

37. VISHNUDOL TEMPLE, JOYSAGAR, DISTRICT STBSAGAR.-The leakage in the main shrine was arrested by the grouting of the open joints in the brickwork with liquid cement. The cracks at the junction of the vertical wall and the spire were also made good by grouting. The decayed and missing brickwork over the lintel of the entrance-door was restored in conformity with the original. The bulged-out masonry of the vault of the *antarala* was re-set by the renewal of the key-stones. The original water-outlet of the sanctum was traced and set in order to drain the water stagnating within the sanctum. The cracks in the roof of the *mandapa* were repaired, the trees eradicated and the resultant damages made good.

38. SIBDOL TEMPLE, SIBSAGAR.—The special repairs to this temple, damaged by earthquake, which had been suspended last year due to the want of stones, were resumed this year. The bulged-out and overhanging facing-stones on the north and partially on the north-west sides were taken out and re-set, adding new stones matching with the original at places where they had been missing. The broad features of the carvings on the pilasters, which had sustained damage, were reproduced. Some portions of the rubble-masonry of the core were dismantled to introduce bond-stones and then re-set with due care. The facing ashlar-courses were properly bonded with the core by copper clamps and pins. The open joints in the stonework of the cornice-mouldings were grouted.

Manipur

39. TEMPLE OF VISHNU, BISHENPUR.—This recently-protected small temple was covered with jungle and was used as a store-house by the owner, in whose courtyard it is situated. To give the temple a proper setting and to provide access, sufficient land was acquired. The temple itself was cleared of all vegetation and its basement strengthened by a course of waterproof concrete. The compound was levelled and dressed up.

Orissa

40. BUDDHIST REMAINS, RATNAGIRI, DISTRICT CUTTACK.—Four minor *stupas* near the Main Stupa, which had been in a badly-shattered condition, were restored by the replacement of missing bricks and reproduction of ornamental mouldings in conformity with the original. In addition, the following works were done to Monastery 1, where the work is in progress.

The two pylons flanking the front porch were restored to their maximum-evidenced height by the re-setting of the old ashlar-masonry and brickwork within the core and introduction of new stones after the original where necessary (pl. LXXVII). An image originally housed in the niche on the front side of the east pylon but found lying on the damaged masonry by the side of the scanty remains of the niche was re-set in the niche after a partial restoration of the latter.

The badly-dilapidated screens of the front porch were reconstructed by the renewal of the brickwork. The ashlar-masonry of the side-walls of the porch was repaired and res-tored to a reasonable height with the two images of Vajrapani and Padmapani fixed in the niches in these walls (pl. LXXVII1). The lavishly-carved stones of the back wall of the porch, which had been slightly dislocated due to the splitting of the stones by the corroded iron dowels and cramps, were re-set and the height of the wall increased by the restoration of a large num-ber of carved stones found amidst the debris (pl. LXXIX). The ashlar-masonry of the passage connecting the front porch with the rear one was renewed.

A major portion of the exterior face of the south wall was repaired by the re-setting of the stones in their original position and was restored to a reasonable height. The interior brickwork of the east and south walls and the west wall of Cell 3 were renewed by chiselled bricks in the facing. The moulded and carved brickwork over the architrave was reproduced (pl. LXXX).

The arched ceilings of the passages of Cells 4 and 11 (pl. LXXXI) were completely restored with chiselled bricks. The missing brickwork over the entrance of Cell 4 was also restored. The interior faces of the north, east and west walls of the shrine were renewed, also with chiselled bricks. The corbelled secret chambers in the thickness of the east and west walls were rebuilt.

41. BUDDHIST REMAINS, UDAYAGIRI, DISTRICT CUTTACK.—Repairs to the rock-cut step-well were carried out by way of rebuilding the remaining portion of the pavement *(1958-59,* p. 88), and wide cracks in the rock-cut walls of the well were filled.

42. GROUP OF TEMPLES, BHUBANESWAR, DISTRICT PURI.—Four shrines inside the compound of the Lingaraja temple were thoroughly rebuilt (*1958-59,* p. 88) by the re-setting of the dislocated stones and introduction of new ones wherever necessary, grouting of the holes in the core and finishing of the exterior with recessed pointing. The *amalaka* and *kalasa* of the Bhaskaresvara temple, which had broken to pieces during a storm, were restored after the original. The leakages in the *jagamohanas* of the Muktesvara, Siddhe-svara, Parasuramesvara and Yamesvara temples were stopped by the grouting of the holes and cavities in the roof.

43. CAVES, KHANDAGIRI, DISTRICT PURI.—The holes and crevices in Caves 4 and 5 were grouted. In the course of the clearance of the debris in front of the double-celled Cave 13, a verandah with the bases of four pillars was found. A bench ran on all sides of the verandah except the front and there were pilasters on the two sides of the benches. In the corner of the left cell was a natural cavity to drain out water, and this was found to have been converted into a rock-cut drain with the provision for capping with stone slabs through the floor of the cell and verandah.

44. SUN TEMPLE, KONARAK, DISTRICT PURI.—In continuation of the previous year's work (*1958-59,* p. 89), grouting of the holes inside the platform around the temple was taken up and seven hundred holes filled. The loose sand below the pedestal of the colossal horse in the compound was supported with stone pitching. An attempt was made to reproduce some broad mouldings near the entrance to the *jagamohana.* The coping of the southern flank of the compound-wall was restored. Now that the compound-wall is completely cleared of stone blocks and sand, it has been decided to reverse the slope of the sand outside the compound-wall to a width of about 20 ft.

45. CAVES, UDAYAGIRl, DISTRICT PURI.—An extensive clearance of the debris and filling in the upper reaches of the hill was undertaken to expose and maintain as far as possible, the original contours of the hill. In the course of clearance were found, in front of

Cave 9, the ruins of a cave consisting of a single cell with two doors fronted by a verandah provided with two square pillars and pilasters with stepped bases. It appears that this cave was deliberately destroyed by the excavators of Cave 9, who intended to have a spacious courtyard in front. Along the eastern and northern walls of the cell was a narrow rock-cut drain to take off water percolating into the cell through a breach in the rock. In front of this cave was an expansive rock-cut courtyard. It remains to follow up the original levels thus exposed up to Cave 14 (Hathi-gumpha).

A reinforced-concrete pillar and a pilaster were constructed in the right wing of Cave 1 (Rani-gumpha) after the pattern of the original members, in place of a square masonry shaft built many years back.

Tripura

46. GUNAVATI GROUP OF TEMPLES, UDAIPUR.—In continuation of the major repairs initiated in the previous year *(1958-59,* p. 89), the temples were fully conserved by fixing in position the damaged *kalasa*, making watertight the dome and the roof with the renewal of lime-concrete, repairing the damaged brick cornice around the roof, under-pinning the surface of the outer walls with coursed brickwork and attending to damaged brickwork at the entrances. The area around the temples was levelled and dressed up with proper slopes.

West Bengal

47. GROUP OF MONUMENTS, VISHNUPUR, DISTRICT BANKURA.—The floors of the corridors of the Rasamancha and of the *garbha-griha* of the Madanamohana temple were re-laid.

48. TEMPLE OF BASULI AND OTHER TEMPLES, NANUR, DISTRICT BIRBHUM.—The leaky roof of the Basuli temple was made watertight by the renewal of the lime-concrete. The longitudinal crack in the vaulted roof of the sanctum was filled and the key-bricks renewed. Other temples by its side also received attention by way of making the terrace watertight, filling minor cracks and renewing the plinth. The area around the temples was dressed up and sloped outwards to arrest the stagnation of water.

49. DARGAH OF SHAH ATA, GANGARAMPUR, DISTRICT DINAJPUR.—The *dargah* was conserved by the eradication of trees, making of the tops of walls watertight and levelling and dressing of the entire area.

50. MOSQUE AND MINAR, PANDUA, DISTRICT HOOGHLY.—The flooring of the terraces at different levels around the *minar*, which had become pitted and admitted water inside, was re-laid.

51. GROUP OF MONUMENTS, GAUR, DISTRICT MALDA.—The missing brick-work of the core of the bastion of the Tantipura mosque was restored and its top made watertight. New concrete was laid on the roof of the Chamkati mosque after the removal of the decayed concrete. Trees taking deep roots in the walls of the Kotwali gate were up-rooted and the damage made good. The collapsed arched roof of the Dakhil-Darwaza was rebuilt. The uneven courtyard of the Kadam-Rasul mosque, allowing stagnation of water and growth of shrubs in its open joints, was re-laid and the area dressed up with a proper slope. The overhanging brickwork of the outhouse was underpinned and the salt-affected

bricks replaced. Some underpinning was also done to the Lukachuri gate Patches of concrete and plaster were re-laid on the intrados of the dome of thc Chlcka mosque. Portions of the ornamental brickwork of the Gumti gate were reproduced. A portion of the Bais-gazi wall was cleared of trees and the damaged brickwork attended to. Ornamental brickwork on the facade of the Lotton mosque was reproduced over a limited area.

52. GROUP OF MONUMENTS, PANDUA, DISTRICT MALDA.—Debris was removed from around the compound-wall of the Qutb-Shahi mosque and the overhanging brickwork underpinned. The disintegrated floor of the Adina mosque was re-laid.

53. BHAVANISVARA TEMPLE, BARANAGAP, DISTRICT MURSHIDABAD.—The spongy terracing of the temple was renewed and the decayed mouldings in plaster repro-duced after the original. The work is in progress.

54. TOMB AND MOSQUE OF MURSHID QULI KHAN, KATRA, DISTRICT MURSHIDABAD.—Eight of the *katra*-cells were completely conserved by the renewal of the missing brickwork.

55. MOSQUE AND TOMB OF SHUJAU'D-DIN, ROSHNIBAG, DISTRICT MURSHIDABAD.—The collapsed gateway and the damaged portion of the compound-wall around the tomb were rebuilt.

MID-EASTERN CIRCLE

Bihar

56. ASOKA COLUMN, LAURIYA-NANDANGARH, DISTRICT CHAMPARAN.—The area all round the column was beautified by a circular park and lime-concrete pathways.

57. STUPA, NANDANGARH, DISTRICT CHAMPARAN.—The area was cleared of all jungle-growth and the work of providing a fencing around the remains was started.

58. ASOKA COLUMN, RAMPURWA, DISTRICT CHAMPARAN.-A general clearance was undertaken around the pillar (pl. LXXXII).

59. STUPA, BASARH, DISTRICT MUZAFFARPUR.-An earthen bund was erected to check the entry of water into the newly-excavated remains (*1957-58*, p. 10).

60. EXCAVATED REMAINS, KUMRAHAR, DISTRICT PATNA.-Water was removed from the low-lying site of the Mauryan hall to expose the pillar-fragments *in situ* The turfed areas and pathways were kept in a satisfactory condition. An area of about 3 acres was cleared, levelled and made ready for the extension of the lawns.

61. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.-The turfed areas were maintained in a presentable condition and a terraced garden adjacent to Site 3, was grassed. The temple-sites were attended to by way of underpinning and making the exposed tops watertight. The lime-concrete pathways were further extended The work of providing a *pucca* drain for Sites 8, 9 and 10 was started.

62. GROUP OF MONUMENTS, RAJGIR, DISTRICT PATNA.-A part of the wall of the New Fort was further traced and conserved to a length of 150 ft by underpinning and filling open joints. The exposed tops of walls in the Jaina caves were made watertight.

63. FORT AND GATEWAY, ROHTAS, DISTRICT SHAHABAD.—The decayed floors of the palace were made good. The damaged flower-beds in the courtyard of the Shish-Mahal were repaired.

64. SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The spongy plaster of the miniature domes was repaired with lime-mortar. The damaged floor of the verandah was re-laid with lime-concrete.

Uttar Pradesh

65. EXCAVATED REMAINS, KUSINAGARA, DISTRICT DEORIA.—The excavated walls were made watertight by the dismantling and re-setting of two top courses of bricks. The open land around the remains was levelled and lawns and pathways maintained.

66. GOMTI BRIDGE, JAUNPUR.—The dislodged stones of the stair-case leading to the *ghats* were re-set with old stones.

67. OLD FORT, JAUNPUR.—Some portions of the fortification-wall were made watertight.

68. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—Large-scale under-pinning was done to support the superstructure of the monasteries and the Main Shrine. The decayed floor of the courtyard of the Main Shrine was re-laid with fresh lime-concrete. A new pathway was laid along the fence of the deer-park. The missing southern boundary-wall of the Kumaradevi monastery was traced and conserved to a length of 50 ft. The western facade of the Chaukhandi Stupa was restored along with the mouldings.

69. DHARARA MOSQUE, VARANASI.—The north-east *minar* of the mosque having been considered unsafe by committees of experts, steps were taken to erect a high scaffold-ing for reducing the height of the *minar* by two-thirds of its present height.

NORTHERN CIRCLE

Madhya Pradesh

70. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—Recess-pointing of the interior and exterior of the Kandariya temple (*1958-59*, p. 81) was completed. The top of the basement-walls of the Chausath-yogini temple was rendered watertight with concrete.

71. BIR SINGH'S PALACE, DATIA.—The missing *chhajja*-stones of the facade over the gate were replaced. The foreground in front of the steps and the main gate was paved with flagstones. All wide joints at the back of the *dasa*-stones of the third storey were filled after the removal of roots of trees from all the domes.

72. GUPTA TEMPLE, BHUMARA, DISTRICT PANNA—The temple received further attention (*1958-59*, p. 93) by way of clearance (pl. LXXXIII).

73. PARVATI TEMPLE, NACHNA, DISTRICT PANNA.—The surroundings of the temple were cleared of all vegetation and the area dressed up (pl. LXXXIV) by the removal and collection at one place of all scattered stones and brickbats-.

Rajasthan

74. DIG PALACES, DIG, DISTRICT BHARATPUR. —The eighteenth-ccntury palace-buildings were attended to. Teakwood doors were provided in the Gopal-Bhavan and Krishna-Bhavan. The damaged pavement near the Nanda-Bhavan and the sunken floor near the Suraj-Bhavan were re-set.

Uttar Pradesh

75. FATEHPURI MOSQUE, AGRA.—The broken red sandstone *jalis* of the mosque and the decayed flagstones of the prayer-hall were replaced. The open joints in the masonry at the back side were pointed.

76. FORT, AGRA.—The pulverized portions of the concrete on the roof of the Diwan-i-'Am were removed and replaced by fresh lime-concrete. The brickwork of the sides of the ramp was underpinned and the joints in the marble masonry of the *chattris* of the Moti-Masjid were pointed. The decayed patches of plaster in the Anguri-Bagh and Machchhi-Bhavan were scraped out and replastered. The decayed stones in the Naubat-Khana were changed.

77. 'ITIMADU'D-DAULA'S TOMB, AGRA.—Many of the inlay-pieces in the south-east corner-tower and southern facade were re-set and missing ones replaced.

78. SAHELI-BURJ, AGRA.—Fresh concrete was laid on the roof of the tomb and the open joints in the dome were pointed. Damaged patches of plaster were repaired and moss removed from the masonry.

79. TAJ-MAHAL, AGRA.—Patches of the stone paving in the court in front of the mosque, which had sagged at many places, thus allowing the stagnation of water, were re-set in their original level. The second coat of weak cement-plaster, applied in 1954 on the intrados of the second dome to remove salt from the core, was scraped out and a new coat of weak cement-mortar was applied for the third time for the further removal of salt. The work is in progress.

The dislodged stones in the pavement and stone *jalis* of the south-west corner *chhattri* were re-set. The joints in the facade of the mosque and the wall to the east of the main gate were pointed. The brickwork of the Khan-i-'Alam was underpinned and the collapsed por-tion of the wall to the south of the Fatehpuri gate was rebuilt.

80. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA.-The missing and badly-cracked *chhajja*-stones of Mariam's house were replaced by new ones and the uneven ones were re-set in position. The floor of the three rooms of the ground-floor was re-laid with fresh stones. The collapsed portion of the city-wall, east of the Agra gate was rebuilt. Fresh concrete was laid near Manam's tank and on the roof of Hakim's *hamam* The side-walls of the ramp leading to the roof of Hakim's *hamam* were reconstructed The joints in the masonry of the plinth of the Diwan -l-'Am were pointed and the decayed stones of the plinth of the verandah of Akbar s Khwabgah were replaced.

81. HUMAYUN'S MOSQUE, KACHPURA, DISTRICT AGRA.—The floor of the southern compartment of the mosque was re-laid with fresh lime-concrete. Joints in the brick work were filled at places. The decayed portions of the floor in the northern compartment were treated with lime-concrete. A brick compound-wall was erected on the south and east.

82. TOMB OF MAQDUM SHAH, RASULPUR, DISTRICT AGRA.—The enclosure around the tomb, overgrown with vegetation, was cleared and the stones of the floor were re-sct in position. Fresh concrete was laid in front of the mosque and the broken portions of the compound-wall on the west side reconstructed.

83. AKBAR'S TOMB, SlKANDARA, DISTRICT AGRA.—The decayed portions of lime-concrete on the terrace of the first floor were re-laid with fresh lime-concrete. Repairs to the longitudinal cracks in the centre of the mortuary-chamber were continued (*1958-59*, p. 95). The loose inlay-pieces in the facade of the false gate towards the cast of the tomb were re-set. The intrados of the archways and the back wall of the Hathi-Khana adjoining the entrance-gateway of the tomb was underpinned and pointed.

84. MARIAM'S TOMB, SlKANDARA, DISTRICT AGRA.—The missing stones of the *guldasta* along with the border of the stone-*jali* of the facade of the western gate of the tomb were replaced. Portions of the facade were grouted and pointed.

85. MOSQUE, MISSION-COMPOUND, SlKANDARA, DISTRICT AGRA.—The missing and decayed patches of plaster on the facade were repaired and the brickwork underpinned and pointed.

86. EXCAVATED REMAINS, KAUSAMBI, DISTRICT ALLAHABAD.—The remains of brick structures, including the 40-ft. high revetment, brought to light by excavation (*1957-58*, p. 47), were preserved by the making of the tops of walls watertight; the top two or three courses of bricks were removed and re-set in lime-mortar and the foundations of the walls were underpinned at places where the walls had been hanging precariously. Brick-lined drains were constructed to drain away rain-water and all debris was cleared.

87. GROUP OF MONUMENTS, KHUSRUBAGH, ALLAHABAD.—The terraced roof of the tomb of Khusru was laid with fresh concrete, after the grouting of all holes and cracks caused by lightning. The decayed patches, of plaster on the walls of the three floors of the southern gateway were restored. The brickwork of the southern enclosure-wall was underpinned and the joints pointed with recessed lime-mortar.

88. GROUP OF TEMPLES, BAUNATH, DISTRICT ALMORA.—The decayed wood-work of the Rakshadeva temple and the *bhogasala* attached to the Satya-Narayana temple were attended to.

89. GROUP OF TEMPLES, JAGESWAR, DISTRICT ALMORA.—The compound-wall around the group was suitably raised to stop trespass from the river-side and a wooden door was provided. The Naya-Durga temple was provided with expanded-metal door-frames to house the scattered images. The dislodged masonry of the temple, including a piece depicting the *chaitya*-window design, was re-set in position. The tank to the south was repaired by the re-setting of the heavy displaced stones. The bridge over the river to the Dandesvara temple was made good by the replacement of the missing wooden floor. The plinth of the Kubera temple was exposed and the foundation and plinth were underpinned.

90. TOMB OF HAFIZ RAH MAT KHAN, BAREILLY.-The roots of trees were eradicated from the dome of the tomb, all cracks grouted and the damaged portions made good with plaster.

91. GULAB-BARI, FAIZABAD.—The wide and deep cracks of the southern gate were filled and the water-absorbent patches of plaster on the walls and ceiling of the verandah were raked out and re-laid with new concrete. All rank vegetation was removed.

92. GROUP OF MONUMENTS, BARAWASAGAR, DISTRICT JHANSI.—The Open joints in the external masonry of the plinth of the Jarai-ka-Math and its compound-wall were recess-pointed with suitably-toned mortar. Vegetation was removed from the fortification-walls and the approach to the fort cleared of all trees and shrubs.

93. SIVA TEMPLE, CHANDPUR, DISTRICT JHANSI.-The masonry of the compound-wall was underpinned. The dislodged stone slabs of the roof of the *matha* near the tank were re-set. All rank vegetation around the group of temples was cleared.

94. FORT, TALBAHAT, DISTRICT JHANSI.-All Jungle-growth on the fort-wall and within the fort was cleared. A portion of the water-absorbent roof of the Manik-Chowk was dismantled and renewed by fresh lime-concrete.

95. IMAMBARA OF ASAFU'D-DAULA, LUCKNOW.-The southern face of the western wing of the second gateway was underpinned and plastered. The dead plaster over the series of miniature cupolas was removed and replaced by fresh plaster. The fractured portion of the stone kiosks were chiselled and stone headings inserted. The floor was re-laid with lime-concrete and the *baoli* attached to the Imambara was pointed.

.96. KAISAR-BAGH GATES, LUCKNOW._The roof of the gates was made water-tight with patches of lime-concrete at places. The other repairs consisted of pointing and edging of plaster.

97. MASHIRZADI'S TOMB, LUCKNOW.—The broken *chhajja*-stones were replaced and a cast-iron pipe was laid to drain off rain-water. The rusted iron rings under the cornices of the monument were removed and the holes plugged.

98. NEIL'S GATE, LUCKNOW.—The leakage in the roof of the gate was stopped by a lime-and-cement concrete ledge. Decayed patches of plaster were scraped off and replaced with fresh plaster.

99. RESIDENCY BUILDINGS, LUCKNOW.-The repairs in the cemetery consisted mainly of extensive pointing, underpinning,, edging of plaster and filling of cracks.

100. RUMI-DARWAZA, LUCKNOW.-The dislodged stones of the jambs of the arches were re-set and the cracks in the arched gateway filled with cement-concrete.

101. BRIDGE OVER THE BHITA AND ATTACHED TEMPLE, TIKAITGANJ DISTRICT LUCKNOW.—The floor of the temple, which had become spongy, was raked out and laid with fresh lime-cement concrete. All rank vegetation was eradicated and the compound-wall of the temple replastered with lime-concrete.

102. GOVINDA-DEVA'S TEMPLE, BRINDAVAN, DISTRICT MATHURA.-The badly-decayed and missing stones of the ramp in front of the temple were replaced by new stones, while the dislodged ones were re-set in position.

NORTH-WESTERN CIRCLE

Delhi

103. BADARPUR GATE, DELHI.-The western wall of the northern gateway of the Badarpur Sarai was pointed and the arches and pillars strengthened by underpinning.

104. BEGAMPURI MOSQUE, DELHI.—The uneven stones of the floor were re-set and the open joints of the outer walls pointed.

105. BHURE KHAN'S TOMB, DELHI.—The holes and cracks in the walls were filled with mortar and open joints pointed. The damaged floors were dismantled and re-laid with fresh lime-cement concrete.

106. CHHOTE KHAN'S TOMB, DELHI.—The holes and cavities in the walls, entrance-gate and upper *chhattris* were grouted. The loose concrete of the floor was dismantled and re-laid with fresh lime-cement concrete.

107. GH1YASU'D-D1N TUGHLUQ'S TOMB, DELHI.—The dead and loose mortar of the marble dome was raked out and the crevices grouted and made watertight.

108. HAUZ-KHAS, DELHI.—The ornamental and inscribed plaster of the ceilings of three of the tombs, which had been peeling off, was fixed by grouting and edging of the adjacent surface. The buried structures on the northern side of the Lohewala-Gumbad were exposed. The loose concrete roofing of the Baradari was replaced by new lime-cement concrete. The decayed rubble masonry of the eastern boundary-wall from the main entrance to the north-eastern corner was dismantled; its reconstruction, to match with the original, is in progress (pl. LXXXV). Two entrances, later blocked, came to light in the wall.

109. JAMT-MASJID, DELHI.—The decayed and dislodged ornamental and plain red sandstones of the western and southern basement-wall were replaced by new ones in lime-cement mortar after the filling of the cavities and cracks behind the veneer with liquid cement-mortar. The roof-concrete of the southern and the eastern gateways was re-laid. Some of the decayed white and black marbles on the main dome were replaced by new ones. Recess-pointing and grouting of the joints and cracks of the main dome were completed with special mortar. The open joints in the prayer-chamber of the mosque were filled up with liquid cement-mortar and made watertight after the replacement of stone pieces split up on account of the rusting of iron dowels. The missing sections of the white marble railing of the top balcony of the north-east *minar* were replaced by new stones. The cavities, cracks and dowel-affected sections inside the *minar* were filled up. The replacement of the decayed stones of the squinches in the main prayer-chamber and the making watertight of the southern dome are in progress.

110 KALE KHAN'S TOMB, DELHI.-The damaged floor was re-laid with new concrete and the holes, cracks and fissures of the arches were grouted and pointed.

111. KALI-MASJID, DELHI.-The fallen and missing rubble masonry of the southern wall and south-east bastion was reconstructed.

112. KASHMIRI GATE, DELHI.-The roof of the main gateway and the floor of the eastern entrance were repaired with fresh concrete.

113 KHIRKI MOSQUE, DELHI.-The crevices and open joints in the basement-cells and the domes were filled, grouted and pointed with mortar. The sunken stones of the floor were re-set to their original level. The inner domes were cleaned and the basement-cells cleared of rubbish.

114 QUTB DELHI.-The lower portions of the northern enclosure-wall of the Qutb area were exposed by the removal of debris. Vegetation and debris were removed from

the Garhgaj mound on the east of Qutb; a circular structure of rubble masonry was brought to light in the operation.

115. RED FORT, DELHI.—The re-laying of the roof-concrete *(1958-59*, p. 98) of the Diwan-i-'Am and the Khas-Mahal was completed. The joints of the marble flooring in the Diwan-i-Khas were pointed and the outer walls colourwashed. Brick and red sand-stone edgings were provided to the pathways around the Naubat-Khana and Diwan-i-'Am. The missing red sandstone slabs of the flooring of the Rang-Mahal are being replaced by new ones.

116. SULTAN-GHARI, DELHI.—Preliminary work for the re-setting of loose and bulged marble facing-stones and re-laying of roof-concrete of the main chamber revealed some remarkable Hindu sculptures lying embedded in the roof-concrete (p. 67; pl. LVIII A and B). The originally-scheduled repairs are in progress (pl. LXXXVI).

117. TRIPOLIA GATEWAYS, DELHI.—The holes and crevices in the brickwork were grouted and pointed and the parapet-walls and steps plastered.

118. TUGHLAQABAD FORT, DELHI.—The work of reconditioning some of the cells near the Khuni-Burj was continued *(1958-59*, p. 98) and is in progress. Portions of the fallen rubble masonry of the core of the fortification-wall to the west and the bastion flanking the main entrance were reconstructed. The repairs to the bastion to the east of the water-gate near the Adilabad bund were partially completed. The decayed roof-concrete of the main entrance was dismantled and the re-laying of fresh concrete is in progress.

119. WAZIRABAD MONUMENTS, DELHI.—The fallen portion of the rubble-masonry of the bridge and mosque was reconstructed and the open joints and cracks grouted and pointed.

120. 'ABDUR RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI.—The stone pillars of the roof-*chkattris*, which had gone out of plumb, are being re-set in position.

121. AFSARWALA MOSQUE, NEW DELHI.-The decayed and porous lime-concrete of the terraced roof was dismantled and roof was re-laid with fresh lime-cement concrete.

122. 'ARAB-SARAI, NEW DELHI.-The decayed and missing rubble masonry of the cells adjoining the eastern gateway was reconstructed and the floors relaid with lime-concrete.

123. BU-HALIMA'S GARDEN, NEW DELHI.-The loose masonry of the north-western wall, was reconstructed.

124. 'ISA KHAN'S TOMB, NEW DELHI.-The holes, cracks and open joints of the walls were filled with mortar and rendered watertight. The fallen masonry of the north-east and north-west outer compound-wall was rebuilt. Pathways were laid around the monument.

125. JANTAR-MANTAR, NEW DELHI.-The work of plastering the walls of the *yantras* was taken up and is in progress.

126. KHAIRU'L-MANZIL MOSQUE, NEW DLEHI.-Several damaged and missing patches of the rubble-masonry of the walls were reconstructed and the open joints pointed.

126. KOTLA FIRUZ SHAH, NEW DELHI.-The open joints of the rubble floor of the mosque were rendered watertight. The walls exposed last year (1958-59, p. 99) in the quadrangle between the eastern boundary-wall and the pyramidal edifice bearing the Asokan pillar were repaired and the open joints pointed (pl. LXXXVII).

128. LAL-BANGLA, NEW DELHI.-The damaged paths around the twin tombs were consolidated and dressed with a layer of *morum*.

129. NAJAF KHAN'S TOMB, NEW DELHI.-The decayed rubble-masonry of the exposed compound-wall *(1958-59,* p. 99) was repaired and rebuilt to an approximate height of 3 ft. Several missing masonry patches of the eastern wall were restored.

130. SAFDARJANG'S TOMB, NEW DELHI.-The terraced floors of the platforms of the southern and northern *baradaris* of the tomb were re-laid. The walls of the platforms and the cells to the east and west of the southern *baradari* were replastered. The broken and missing *chhajja*-stones on the southern *baradari* were replaced with new ones. The loose earthen floor of the northern inner verandah of the tomb was cleaned and surfaced with new red sandstones.

Himachal Pradesh

131. LAKSHM1-NARAYANA TEMPLE, CHAMBA.—The work of providing ashlar-masonry in the portions of the *sikhara* damaged by -fire is in progress. Some of the affected stones were replaced by new ones.

Panjab

132. FORT, BHATINDA.—All sagged portions of the terraces, except those on the northern side, were opened and filled with earth, watered and consolidated. The damaged portion of the eastern wall at the south-east corner was repaired in brickwork in *kankar*-lime.

133. SURAJ-KUND, LAKKARPUR, DISTRICT GURGAON:—The reconstruction of the fallen portions of the dry masonry of the Garhi *(1958-59,* p. 99) was completed. The cavities in the terraces of the flight of steps on the southern side were filled up with stones and the surface consolidated.

134. HUMAYUN'S PILLAR AND MOSQUE, FATEHABAD, DISTRICT HISSAR.—The missing brickwork was rebuilt and the open joints of the boundary-wall pointed.

135. FIRUZ SHAH'S PALACE AND TAHKHANAS, HISSAR.—The fallen portion of the western brick wall was rebuilt. The roof of the ramp was re-laid with rubble masonry and the stairs rendered watertight. The pointing of the open joints of the walls, ceiling, pillars of cells, galleries and stair-cases is in progress.

136. GUJRI-MAHAL, HISSAR.—The parapet-walls were made watertight and the open joints pointed.

137. JAHAZ-KOTHI, HISSAR.—The open joints of the compound-wall were pointed. The western side of the monument was closed with barbed-wire fencing.

138. TOMBS, NAKODAR, DISTRICT JULLUNDUR.—The missing pinnacles of the corner-*chhattris* were rebuilt and the central pinnacle was grouted in cement-mortar.

139. BAUNATH TEMPLE, BAUNATH, DISTRICT KANGRA.—In order to clear the precincts of the monument, a part of the modern structure in the temple was dismantled and the open area provided with stone flooring.

140. MUGHUL-SARAI GATEWAYS, GHARAUND, DISTRICT KANGRA.—The brick-work of the southern and northern gateways was repaired and the open joints pointed.

141. FORT, KANGRA.—The temple-area of the fort was excavated and the carved surface of the walls of the Lakshmi-Narayana temple exposed. Clearance is in progress between the Ranjit Singh gate and Jahangir gate to expose the ancient stepped pavements.

142. FORT, KOTLA, DISTRICT KANGRA.-A part of the flight of steps was re-set.

143. KABULI-BAGH MOSQUE, PANIPAT, DISTRICT KARNAL.—The missing patches of the brick wall and bastions on the southern and eastern side were rebuilt. The top of the dome was replastered.

144. PATHAR-MASJID, THANESWAR, DISTRICT KARNAL.—A low retaining-wall was provided up to the plinth-level of the monument on its northern and eastern sides.

Rajasthan

145. ANASAGAR, BARADARI, AJMER.—The flooring of the *hamam* was re-laid in lime-concrete.

146. BADSHAHI-HAVELI, AJMER.—The damaged portions of the floor were re-laid in lime-concrete.

147. TOMB OF ABDULLAH KHAN'S BEGAM, AJMER.-A compound-wall was constructed to stop unauthorized entry into the monument.

148. BADSHAHI-MAHAL, PUSHKAR, DISTRICT AJMER.-Clearance of heaps of sand, commenced last year *(1958-59*, p. 100), was continued around the monument and dry stone pitching provided along the embankment of the cleared area to check the sand sliding in again.

149. GARH. ALWAR.—The sites of ruined temples called Naugaza and Kot-ki-Dcoli were cleared of debris and collapsed walls (pl. LXXXVII1). The operation brought to light a number of important Jaina and Brahmanical sculptures and an inscription (p. 74; pl. LX1I).

150. BHATNER FORT, HANUMANGARH, DISTRICT GANGANAGAR.-Repairs to the damaged brickwork of the walls and bastions were continued *(1958-59*, p. 100). The pits inside the fort were filled up with earth and consolidated.

151.. KALYAN RAIJI'S TEMPLE, TODA RA1 SINGH, DISTRICT TONK.—The northern and western sides of the temple-area were cleared of debris and dressed.

Uttar Pradesh

152. ASVAMEDHA SITE, JAGATGRAM, DISTRICT DEHRA DUN.-The enclosures were provided with iron gates.

153. ASOKA'S ROCK-EDICTS, KALSI, DISTRICT DEHRA DUN.-The damaged roof of the domed shelter was grouted and its loose joints pointed. The interior of the shelter was whitewashed and its doors, windows and *jalis* repainted. The area around the shelter was levelled and dressed.

154. MOSQUE AND TOMB OF SHAH ABDUL RAZZAQ, JHINJHANA, DISTRICT MUZAFFARNAGAR.—The holes and cavities in the mosque and tomb were grouted, loose masonry strengthened and the floor repaired.

155. MOSQUE AND TOMB, MAJHERE, DISTRICT MUZAFFARNAGAR.—The damaged ashlar-masonry was underpinned and pointed as necessary.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

156. FORT, GOOTY, DISTRICT ANANTAPUR.—The damaged concrete of the thirtysix-pillared *mandapa* was removed and the area resurfaced with 3-in. thick lime-cement mortar.

157. MADHAVARAYASVAMI TEMPLE, GORANTALA, DISTRICT ANANTAPUR.—The top of the unfinished *gopuram* was rendered watertight by laying a 3-in. thick layer of fresh lime-cement concrete, with proper slopes for the drainage of water. The deep and wide joints of the cut-stone masonry walls were recess-pointed. The floor of the *kalyana-mandapa* was paved with cut-stone slabs, 4 in. thick, over a bed of lime-concrete.

158. HILL-FORT, PENUKONDA, DISTRICT ANANTAPUR.—The open joints of the fort-wall were pointed with lime-cement mortar. The Fama's bastion was partly attended to by way of grouting the wide and deep cracks. The damaged terracing on the top of the bastion was re-laid with a 3-in. thick layer of lime-cement cencrete.

159. HILL-FORT, RATNAGIRI, DISTRICT ANANTAPUR.—The fallen portions of fort-walls were rebuilt in dry stone masonry, using the available large-sized stones. The parapet-wall was similarly treated and its fallen portions restored in keeping with the original character of the masonry.

160. LOWER FORT, CHANDRAGIRI, DISTRICT CHITTOOR.—The fort-walls flanking the second gateway had fallen down for a considerable length. With a view to stabilizing the gateway, the portions of these walls were restored and partly underpinned with heavy blocks of stone in accordance with original character of the masonry. The joints were recess-pointed with suitably-tinted mortar. The precincts of the temples within the fort were cleared of debris and their plinths exposed to view.

161. FORT AND MAHAL, GURRAMKONDA, DISTRICT CHITTOOR.-The modern partition-walls in the pillared hall were removed, thus exposing it to its full dimensions. The roof of the kitchen-block of the *mahal* was repaired by the replacement of damaged flat tiles with new ones in lime-mortar.

162. CHENNAKESVARA TEMPLE, SOMAPALLI, DISTRICT CHITTOOR.—The damaged floor of the temple was renewed by laying old and new cut-stone slabs over a 4-in. thick gravel-bedding. The joints of the flooring were recess-pointed. Portions of the roof were re-laid with lime-concrete after the removal of the damaged concrete. The cracks in the roof of the *mukha-mandapa* were opened, grouted and sealed with stone chips in cement.

163. SUBRAMANYASVAMI TEMPLE, VELLIMALAI, DISTRICT CHITTOOR.—A major breach in the compound-wall of the temple, for a length of about 20 ft., along with other minor breaches, was repaired. The top of the wall was also made watertight.

164. MASJID, FORT, GANDIKOTA, DISTRICT CUDDAPAH.—The crack in the roof of the southern row of *dalans* around the *masjid,* running to a length of about 60 ft. and necessitating the support of the roof by masonry props in the past, was opened to a depth of 2 ft. 6 in., and wedge-shaped stone blocks were inserted in the gap to stitch the masonry; a layer of concrete was laid over it.

165. BUDDHIST REMAINS, GUNTAPALLI, DISTRICT GODAVARI WEST.—The accumulated debris of silt and stones, absorbing rain-water and impeding a free drainage of water, was removed. All depressions, cracks and fissures were filled up with suitably-coloured cement-concrete, chiselled to match the character of the rock. In order to divert rain-water away from the caves, gutters were dug and dwarf-walls built in the upper reaches of the hill. Steps erected in the past for reaching the caves were dismantled and pathways with easy gradient provided. Approach-roads were laid and direction notice-boards fixed at suitable places.

166. ROCK-CUT TEMPLE, UNDAVALLI, DISTRICT GUNTUR.-Cut-stone masonry steps were provided from the open courtyard in front of the main group of caves on the western side to the lower cave. The recent partition-walls were removed and the caves restored to their original condition.

167. FORT, GOLCONDA, DISTRICT HYDERABAD.—Clearance of debris was continued (*1958-59,* p. 161) to expose the original lay-out of the structures in the palace-complex. The roof of the Taramati mosque (pl. LXXXIX) and some portions of the Shahi-Mahals were cleared of debris and made watertight with a fresh layer of concrete. The mortuary bath-chambers were attended to by way of clearance of debris to expose the northern halls and the adjacent open space, pointing the joints in the ceiling and arches and providing cut-stone slabs in place of the missing ones. One of the arches towards the south, blocked up in the recent past, was opened and the old approach-path from the Bala-Hissar gate was restored. The flooring in this area was levelled. The terrace-roof was made watertight with concrete.

168. CHAR-MINAR HYDERABAD.—The steps of the spiral stair-cases of all the *minars* were laid with Shahabad slabs and the damaged flooring of the mosque and pathways plastered.

169. FORT, BANDAR, DISTRICT KRISHNA.—The armoury-hall, one of the fairly-intact structures reminiscent of the Dutch occupation of the fort, was extensively repaired Reinforced cement-concrete corbels were inserted in the walls to support the decayed wooden beams. The decayed wooden joints were supported by purlins and angle-iron. The walls were replastered after the removal of old and decayed plaster. The glass shutters of the ventilators on the eastern side were provided with hinges for ventilation. The decayed concrete was removed from the roof, all cracks therein were grouted and a fresh layer of concrete with pantiles fixed over it was provided to make the roof watertight.

170. BUDDHIST REMAINS, GHANTASALA, DISTRICT KRISHNA-All rank vegetation was cleared and an approach-path laid.

171. ABDUL WAHAB KHAN'S TOMB, KURNOOL.-The lime-plaster over the dome of the monument, which had become very spongy and full of cracks and holes was removed and the surface was treated and finished with fresh plaster. A turnstile gate was fixed in the compound-wall to prevent trespass. Minor repairs to the flooring and to the old shutters of the entrance-doorways were also carried out.

172. GROUP OF TEMPLES, ALAMPUR, DISTRICT MAHBUBNAGAR.—This fine group of temples of the early Chalukyan type was attended to. The accumulated debris around the Svarga-Brahma temple was removed to expose the original flooring (pl. XC). All modern accretions, such as partitions and compound-walls, were removed and the entire complex enclosed in one compound-wall, thereby putting a stop to all encroachments. The area to the west of the Garuda-Brahma temple was cleared of debris and its moulded plinth exposed. A dry-stone retaining-wall was built on the southern side to prevent accumulation of earth in the compound from that side. A fresh layer of concrete was laid on the roof of the *sabiia-mandapa* to prevent leakage of rain-water. The *sikhara* over the sanctum of the Vira-Brahma temple, which had developed vertical and gaping joints, was attended to by way of grouting and filling the joints with combination-mortar, finished to match with the surface. The roofs of the Visva-Brahma temple and of the entrance-gateway of the Nava-Brahma temple, were rendered watertight by the removal of the old concrete and re-laying of a fresh concrete coat in combination-mortar. The Papanasi group of temples, about a mile upstream, was also attended to (pl. XCI) and the river-silt, which had covered some of the structures, was removed, exposing to view the plinths of all the temples. The displaced stones of the *sikharas* of the temple were re-set and the wide joints filled with mortar. The roof of the Narasimha temple was made watertight with a fresh layer of concrete.

173. EXCAVATED REMAINS, KONDAPUR, DISTRICT MEDAK.—The approach-paths leading to the exposed remains were maintained in good condition. Gravel-coping was provided on the top of some of the brick structures.

174. HILL-FORT, UDAYAGIRI, DISTRICT NELLORE.—The exposed tops of the galleries and walls around Gateways 1 to 4 of the main fort were made watertight by the filling of joints and cavities with concrete after the removal of the roots of trees and other vegetation. The flooring of the *masjid* inside the fort was redone with graded baby-jelly concrete in combination-mortar. The walls were replastered and the joints of the stone pavement pointed.

175. KRISHNA TEMPLE, UDAYAGIRI, DISTRICT NELLORE.—Extensive repairs were undertaken to this temple by way of re-laying the entire area of the shrine-chamber, *mukha-mandapa* and *ardha-mandapa* with old floor-slabs at their original level and pointing them with suitable mortar. The cut-stone beams of the dilapidated *mukha-mandapa*, which had been hanging dangerously, were re-set in their original position after procuring the missing cut-stone capitals as in the original. The brick support given to the beams was removed.

176. SOMESVARA TEMPLE, MUKHALINGAM, DISTRICT SRIKAKULAM.—The damaged stone jambs of the temple were repaired and re-set in cement-concrete suitably treated to match the original in colour and texture. The image of Nandi lying in front of the temple on the roadside was shifted to a masonry platform at its proper place. The surrounding ground was dressed and levelled, while a stone pavement was provided in front of the temple.

177. BUDDHIST REMAINS, SALIHUNDAM, DISTRICT SRIKAKULAM.—In continuation of last year's work (*1958-59*, p. 102), the walls of the *viharas*, monastic cells and *chaitya*-halls were made watertight by re-setting the topmost layer in cement-mortar. Similar repairs were carried out in the kitchen-block and other solitary walls of the corridors. A new all-weather approach-road was aligned on the upper contours of the hill with cross-drainage facilities to prevent soil- and road-erosion.

178. BUDDHIST REMAINS, RAMATIRTHAM, DISTRICT VISAKHAPATNAM.—The stone *stupa* in the *chaitya-hall,* which had been in a damaged condition, was restored to its original shape. The tops of the excavated brick walls were rendered watertight by the resetting of old bricks in mortar and morum-coping. The disturbed approach-steps leading to the eastern monastic cells and to the image of Buddha on the top corner were re-set. A general clearance of the site was also undertaken.

179 .BUDDHIST REMAINS, SANKARAM, DISTRICT VISAKHAPATNAM.-The exposed tops of walls were made partly watertight and *morum*-coping provided. A general clearance of the site was also undertaken.

180. THOUSAND-PILLARED TEMPLE, HANAMKONDA, DISTRICT WARANGAL.—The flooring of the main temple, the *mandapa* and other structures were heavily disturbed owing to the subsidence of the pillars and the walls. The existing flagstones were therefore re-set in position and in place of the damaged and missing slabs new ones were provided. The damaged portion of the concrete apron around the *mandapa* towards the west was re-laid. Expanded metal in angle-iron frames was provided to the shrines of Suryadeva and Vishnudeva to prevent bat-nuisance. The water-pipe was extended to the west for the maintenance of lawns and garden.

181. RAMAPPA TEMPLE, PALAMPET, DISTRICT WARANGAL.-The cleaning of the inner portions of the temple with water and fibre-brushes to remove soot from the carvings of pillars and lintels was continued (*1958-59*, p. 102). Jungle-clearance was attended to on the outer side of the compound-wall.

182. FORT, WARANGAL.-The roof of the Rama temple in the innermost enclosure of the fort was made watertight with fresh concrete in combination-mortar.

Maharashtra

183. FORT, BHANDAK, DISTRICT CHANDA.-The work carried out here comprised the removal of debris, exposing of the base-line of structures (pl. XCII), making of the tops of fort-walls watertight, stabilizing of the broken edges of the walls and filling up of the gaps in the walls, grouting and pointing of the stepped well and general clearance of vegetation from the entire protected area.

184. FORT-WALL, CHANDA.—Clearance of vegetation from the fort-wall from the Ramla tank to the Bagad-Khidki and re-setting of some of the members of the arches in the Bimba and Achalesvara gates and the Vithoba- and Hanuman-Khidkis were attended to. The broken part of the wall of the Hanuman-Khidki was stabilized and a part of the masonry bund of the Ramla tank was restored.

185. GOND RAJA'S TOMBS, CHANDA.-The damaged concrete was removed from the roof of the tombs and a layer of brick-jelly concrete with proper gradient was laid. The open joints of the stone *chhajjas* were pointed. Gravel was spread over the pathways and the area was properly dressed up.

186. GROUP OF TEMPLES, MARKANDA, DISTRICT CHANDA.-Fresh concrete was laid on the roof of the *mandapa* of the principal temple to stop leakage of water. Perspex-sheets were fixed in the central roof-opening of the *mandapa.*

Madhya Pradesh

187. SIVA AND VISHNU TEMPLES, JANJGIR, DISTRICT BILASPUR.-A masonry retaining-wall was constructed in the south-eastern corner of the platform of the Vishnu temple. A new iron gate was fixed in the fenced compound of the Siva temple.

188. GATEWAYS, RATNAPUR, DISTRICT BILASPUR.—The wall-tops of Gates 1 and 2 were made watertight with fresh lime-concrete. All vegetation was removed.

189. SITA-DEVI TEMPLE, DEORBUA, DISTRICT RAIPUR.-Expanded-metal door-frames were provided at the temple-entrance. Retaining-walls were constructed along the tank; angle-iron posts were provided to the fencing and the wiring was tightened.

190. LAKSHMANA TEMPLE, SIRPUR, DISTRICT RAIPUR.—The undulated area around the temple was dressed and levelled to form terraces. An easy access to the structures and the sculpture-shed was ensured.

SOUTHERN CIRCLE

Kerala

191. FORT, TELLICHERY, DISTRICT CANNANORE.—Debris was removed from the cell and rank vegetation from the fort.

192. FORT, PALGHAT.—Two flights of steps in coarse rubble-masonry and a dwarf-wall in laterite were constructed.

193. MATTANCHERY PALACE, COCHIN, DISTRICT TRICHUR.—The work at this palace consisted of the scraping of old paint from the doors and windows of the palace and repainting them. Varnish was applied to the attic-ceiling.

194. ST. FRANCIS CHURCH, COCHIN, DISTRICT TRICHUR.—Concrete was laid in sections for paving the area with stone slabs. The old paint on the upper face of the corrugated ceiling was scraped off and the surface repainted with red oxide and grey paint.

195. ROCK-CUT CAVE, EYYAL, DISTRICT TRICHUR.—The cave-area was enclosed with a barbed-wire fencing.

196. FORT, ANJENGO, DISTRICT TRIVANDRUM.—The old and deteriorated plaster was removed and the surface replastered. The pathways were gravelled.

Madras

197. GROUP OF MONUMENTS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—A retaining-wall was constructed near the Five Rathas.

198. CLIVE'S BUILDING, FORT ST. GEORGE, MADRAS.-A reinforced cement-concrete spiral stair-case, a wooden stair-case and a small wooden bridge were constructed to provide easy access to the second floor.

199. PALLAPATTY, DINDIGUL, DISTRICT MADURAI.—The floor of the first cellar in the second gate of the fort was repaired with lime-concrete in brick-jelly. The

walls of this and the second cellar were plastered. Expanded-metal frames were fixed to the circular hole o f the granaries between the first and the second gates.

200. VEDA-NARAYANA-PERUMAL TEMPLE, PUDUPADI, DISTRICT NORTH ARCOT-The repairs to this temple consisted of the making of the terrace watertight, re-setting of the floor slabs and construction of steps.

201 ROCK-CUT TEMPLE, SIVAMANGALAM, DISTRICT NORTH ARCOT.-The stone flooring of the front *mandapam,* exposed in parts, was removed and re-set.

202. FORT VELLORE, DISTRICT NORTH ARCOT.-The rampart-walls were under-pinned with brick supports and plastered with *surkhi.* The Jalakantcsvara temple in the fort was also attended to by way of plastering the inner face of the outer wall.

203. FORT AND BUILDINGS, ATTUR, DISTRICT SALEM.-The granaries were underpinned and plastered. Fallen portions of the fort-wall were rebuilt. Gravel was spread

204. FORT AND TEMPLES, CH1NNAKAVANDANUR, DISTRICT SALEM.-The work at this plate consisted of re-setting of the flooring, construction of revetment and replace-ment of the broken lintels by new ones.

205 VENKATARAMANASVAMI TEMPLE, GJNGEE, DISTRICT SOUTH ARCOT.-The repairs to the leaky terrace of the temple, started in the previous year (*1958-59,* p. 104), were completed.

206. NITISVARASVAMI TEMPLE, SRIMUSHNAM, DISTRICT SOUTH ARCOT.-The leaky terrace was repaired and new doors provided to the temple.

207. SIVA TEMPLE AMMANKURICHI, DISTRICT TIRUCHIRAPPALLI.-The leaky terrace was made watertight by two courses of flat tiles in cement-mortar.

208. SIVA TEMPLE, VARPET, END1PATTI, DISTRICT TIRUCHIRAPPALI.-The displaced slabs in the floor were re-set.

209. TIPUVAGN1SVARA TEMPLE, SITTUR, DISTRICT TIRUCHIRAPPALI.-New teakwood teams were fixed to the ceiling of the sanctum. The roof-terrace or the sanctum and of the *mukha-mandapa* was made watertight. The stone slabs of the flooring were re-set and the platform in front of the *mukha-mandapa* was levelled.

210 BHAKTAVATSALA TEMPLE, SERAMADEVI, DISTRICT TIRUNELVELI-The leakv portion of the terrace was made watertight. The rivetment on the northern side was strengthened by dry stone packing.

211. VALISVARA TEMPLE, TIRUVALISVARAM DISTRICT TIRUNELVELI.-The old stone flooring of the *mukha-mandapa* of the Savmi shrine and of the *ardha-mandapa* were repaired the displaced masonry of the retaining-wall of the *dalans* on the northern side of the Svami shrine was re-set.

Mysore

212. OLD DUNGEON, FORT AND GATES, BAN GALORE.-Dry stone packing was added to the apron-wall built to protect the central and Delhi gates. The joints in the masonry were grouted and filled with concrete. Gravel was spread over the ramparts.

213. KRISHNA TEMPLE, K.RISHNAPURAM, DISTRICT BELLARY.—The terrace over the main shrine was plastered to stop leakage.

214. BHIMESVARA TEMPLE, NILAKONDA, DISTRICT BELLARY.-The surrounding area of the temple was cleared of vegetation and levelled. The loose sculptures were arranged at one place.

215. VIRA-NARAYANA-PERUMAL TEMPLE, BELAVADI, DISTRICT CHIKMAGA-LUR.—The open joints of the stone flooring of the temple were pointed. The area around the temple was dressed and scattered stones stacked neatly around the monument.

216. FORT AND MASONRY ELEPHANTS, MERCARA, DISTRICT COORG.—The fallen portion of the fort-wall, including its merlons and the parapet, was reconstructed in hydraulic lime-mortar.

217. KESAVA TEMPLE, BELUR, DISTRICT HASSAN.—Expanded-metal teakwood frames were fixed to the openings of the kitchen to prevent the entry of monkeys.

218. LAKSHMI-NARASIMHA AND SADASIVA TEMPLE, NUGGEHALLI, DISTRICT HASSAN.—The debris around the temple was removed and its basement exposed to view. The blocking-up of the passages was dismantled and a part restored to its original condition.

219. GROUP OF MONUMENTS, SRAVANABELGOLA, DISTRICT HASSAN.—The sunk floor of the inner courtyard was raised and the *prakara* is being re-set. The floor of the raised platform was plastered in suitably-coloured lime-concrete. The compound and parapet-walls of the terrace were provided with coping.

220. KOLARAMA TEMPLE, KOLAR.—The cement-flooring around the *prakara* of the temple was dismantled and the area was re-laid with pointed stone slabs.

221. SOMESVARA TEMPLE, KOLAR.—The *madapalli* was provided with a teak-wood door and windows. All woodwork was painted and gravel spread on pathways.

222. MALLIKARJUNASVAMI TEMPLE, BASRAL, DISTRICT MANDYA.—The wall around the temple was underpinned with random-rubble masonry. Iron cups and sockets were fixed to the doors, which were also painted after the removal of the old paint. Two steps were constructed at the entrance of the temple.

223. LAKSHMI-NARASIMHA TEMPLE, MAREBALLI, DISTRICT MANDYA.—The leaky and spongy terrace over the *sukhanasi* was raked out and a new coat of plaster was given over the surface.

224. DARYA-DAULAT-BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The damaged plaster was removed from the floor in front of the steps and the area was replastered with combination-mortar with an admixture of red ochre to match the existing surface. The ornamental *jali* on the first floor was repaired after the old pattern.

225. TEMPLES, TONNUR, DISTRICT MANDYA.—A wooden door and an expanded-metal frame were fixed respectively in the *sukhanasi* and the opening of the central hall. All accreted walls and debris were removed from the temple.

226. KIRTI-NARAYANA TEMPLE, TALAKAD, DISTRICT MYSORE.—The accumulated sand in front of the temple was removed.

227. DEVAGANGA PONDS, BASAVANABYNE, DISTRICT SHIMOGA.-The fallen portion of the compound-wall was reconstructed with granite stones.

228 FORT MADHUGIRI, DISTRICT TUMKUR.—The loose stones were removed from the cavity formed in the fort-wall and the affected portion filled with dry rubble-masonry.

SOUTH-WESTERN CIRCLE

Maharashtra

229. FARAH-BAGH PALACE, AHMADNAGAR.—The cracks in the walls of the palace were filled with cement-mortar and the walls plastered in lime-mortar after the raking out of the decayed mortar. The exposed tops of walls were made watertight. The floor of the southern part of the palace was concreted. The work is in progress.

230. DHOKESVARA CAVES, DHOKE, DISTRICT AHMADNAGAR.—A retaining-wall was partly constructed to stop further erosion of the approach-path. The work is in progress.

231 ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The conservation of Caves 21 to 29, initiated last year (*1958-59,* p. 108), was completed, and Caves 16 to 20 were taken up for thorough repairs. A rock-cut drain was excavated on the top of these caves to divert rain-water directly landing on the facade. Drip-courses were provided to all these caves. The ashlar-masonry pillars constructed in the past were dismantled and rein-forced cement-concrete pillars constructed in their place to match the rock-surface (pl. XCIII). In this process the masonry-pillar concealing a fine sculpture of Nagaraja located opposite the entrance to Cave 16 was dismantled and the overhanging rock-ceiling was supported by a concealed iron girder (pl. XCIV). This now affords an uninterrupted view of the sculpture and has retrieved the original character of the approach to the cave. Debris was completely removed from the newly-discovered rock-cut tank below Cave 18 and the roof of the tank and the rear wall of the cave was supported by masonry pillars. A reinforced-concrete slab was laid to cover a portion of the tank forming the floor of Cave 18.

Fine repairs to the decayed portions, cracks and fissures of sculptures in Cave 26 were kept in progress. The renowned sculpture of Buddha in *parinirvana* in the cave is being attended to (pl. XCV).

232. BIBI-KA-MAQBARA, AURANGABAD.—The exposed ashlar-masonry facing of the south-west *minar* was plastered with specially-prepared mortar, reproducing the original ornamental designs. Similar work was taken up in respect of the south-east *minar*. The decayed floor of the cistern on the western side was raked out and made waterproof by the laying of fresh concrete.

233. ROCK-CUT CAVES, AURANGABAD.—The work initiated last year (*1958-59,* p. 108) was kept in progress. A drip-course was provided to Cave 1. The ashlar-masonry pillars erected in the past to support overhanging pillars in the northern cell of Cave 3 were dismantled and reinforced cement-concrete pillars simulating the texture and colour of the rock were provided (pl. XCVI). A retaining-wall was constructed in front of Cave 5 to prevent erosion of the edges of the pathways.

234. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—A rock-cut drain was excavated on the tops of Caves 13, 14 and 21 to divert rain-water away from the caves. An underground drain was also provided to drain out water from the courtyard of Cave 10. The accumulated debris and spongy rock were removed from the top of Cave 30 and the area treated with cement-concrete to stop leakage of water. The cracks on the railing-pattern of Cave 31A were made good by the chiselling off of the decayed portion and its reconstruction in cement-concrete. A portion of the roof of Cave 5, threatening to come down, was secured with concealed pins and clamps laid in cement.

Side by side, fine repairs to sculptures were continued by filling the cracks and fissures. The broken head of Nandi in Cave 15 was refixed, while the sculpture of *dvara-pala* in Cave 14 and the Siva-Tandava panel in Cave 16 received attention.

235. SALABAT KHAN'S TOMB, MEHEKARI, DISTRICT AURANGABAD.—The incrustation of whitewash on the ashlar-facing of the monument was raked out and the original surface exposed.

236. ROCK-CUT CAVES, PITALKHORA, DISTRICT AURANGABAD.—Removal of debris from the hillside opposite Cave 1 to 4 was taken in hand. The work is in progress.

237. ROCK-CUT CAVES, KANHERI, DISTRICT BOMBAY SUBURBAN.—Damaged and broken portions of the pillars in Cave 95 were restored in reinforced cement-concrete, matching the texture and colour of the rock. Similar repairs were undertaken to decayed portions of walls and door-jambs.

238. FORT, RA1GADH, DISTRICT KOLABA.—The recently-fallen portion of the brick wall of the coronation-hall of Sivaji was rebuilt with old bricks. The open joints in the brickwork were recess-pointed and the exposed ends of walls made watertight.

239. PANDULENA CAVES, PATHARDI, DISTRICT NASIK.—Debris was removed from Cave 1 and the original floor of the cave exposed. Ashlar-masonry pillars in Caves 1, 3 and 4 were redone in reinforced cement-concrete to match the rock-surface. Rock-cut steps were provided to Cave 9. A rock-cut drain was also cut on the top of the caves to divert rain-water away from the caves. The repairs are in progress.

240. ROCK-CUT CAVES, BHAJA, DISTRICT POONA.—An approach-path was laid to reach the recently-discovered *chaitya* and *vihara*-cave to the south of the main group of caves. Debris was completely removed from these caves; this exposed a small circular *diaitya*-cave and an unfinished *vihara.*

241. AMBIKA AND MANMODI CAVES, JUNNAR, DISTRICT POONA.—Rock-cut steps were provided to a cistern in the Ambika cave-group. The cisterns in the Manmodi group were cleared of debris; in the process a new Brahmi inscription was noticed.

242. GANESA-LENA GROUP OF CAVES, JUNNAR, DISTRICT POONA.—The pits and holes in the floor of the main cave were filled, besides the removal of vegetation and maintenance of pathways.

243. SHIVNERI FORT, JUNNAR, DISTRICT POONA.—The collapsed portion of the bastion between Gates 2 and 3 was reconstructed in keeping with the character of the old masonry. The pathways were maintained and rank vegetation removed.

244. TULJA-LENA GROUP OF CAVES. JUNNAR, DISTRICT POONA.-A masonry platform constructed in front of the *chaitya* in the past was replaced by one in cement-concrete tinted and chiselled to match the rock-surface. The work is in progress.

245. ROCK-CUT CAVES, KARLA, DISTRICT POONA.-A flight of Steps was constructed in reinforced cement-concrete at Cave 3 in place of the missing steps. The broken pillars were restored in the same material after the dismantlement of the masonry supports constructed in the past. Cement-concrete benches were provided for the convenience of visitors. The approach-path leading to the caves was properly maintained.

246. PATALESVARA CAVES, POONA.-The cavities and broken portions in the rock at the entrance, filled with rubble masonry in the past, were plastered and chiselled to impart a rock-like appearance. A parapet-wall matching the rock-surface was constructed at the top of the cave.

247. SHANWARWADA, POONA.—The existing garden was well-maintained and the horticultural operation was extended over a wider area. All water-tanks were cleaned and made watertight.

248. FORT, SINDHUDURG, MALVAN. DISTRICT RATNAGIRI.—A breach in the south-west corner of this sea-girt fort was made good with old stones, each weighing 1 to 2 tons. The masonry was further strengthened by the use of copper clamps fixed in lead joints.

Mysore

249. FORT, BIDAR.— The modern accretions in the Shahi-Hamam, till recently used as a Civil Court, were removed. The damaged patches of plaster were raked out and replastered.

250. GROUP OF MONUMENTS, AIHOLI, DISTRICT BIJAPUR.—The joints in the *sikhara* and the walls of the Narayana temple were recess-pointed. Expanded-metal door-frames were provided in the door-openings of this and the Yogi-Narayana temple to prevent the entry of bats and animals. The missing *chhajja*-slabs of the Meguti temple were replaced. A protective cut-stone sun-shade was provided to protect the inscription on the wall of.the temple. The missing roof-slabs of the Ranchi-gudi and Galagnatha temple were replaced and the roof made watertight by the filling of the joints with cement-mortar. A drain was excavated in the rock-floor of the Jaiha cave known as Mena-Basti to drain out water accumulating in the cave.

251. KOSTARYA CAVE, BADAMI, DISTRICT BUAPUR.—A dwarf parapet-wall was constructed to check rain-water flowing into the cave.

252. NORTH FORT AND TEMPLES, BADAMI, DISTRICT BUAPUR.—After the raking out of the decayed mortar, the joints in the walls of the lower Sivalaya and Nagarkhana were recess-pointed. The tops of walls were made watertight. A good approach-path was constructed to lead to the Pallava inscription.

253. ROCK-CUT CAVES, BADAMI, DISTRICT BUAPUR.—A compound-wall with a gate was constructed to stop the entry of animals inside the caves.

254. GAGAN-MAHAL, BUAPUR.-The side-arches and walls were cleaned, and with the removal of moss and lichen some decorations were brought to light. The exposed portions of wall were plastered after the removal of damaged patches of plaster.

255. GOL-GUMBAD, BUAPUR.-The walls and *minors* were cleaned by the removal of lichen. Patches bereft of plaster on the walls and pillars of the *dalans* were replastered.

256. IBRAHIM RAUZ, BIJAPUR.—The accumulated debris was removed from the underground vaults. Salt-a fleeted mortar was raked out from the joints in the masonry of these vauits and the joints pointed again. The pavement of the *dalans* was re-set and the joints pointed. The extrados of the domes over the tomb and the mosque was freed of all moss and lichen.

257. JAMI'-MASJID, BUAPUR.—The metal pinnacle on the dome was cleaned by the removal of the age-old incrustation of rust. The exposed spandrils of arches were made watertight by pointing all the joints after the removal of decayed mortar. The wall-surface above the arched openings was also plastered. -

258. GROUP OF TEMPLES, PATADKAL, DISTRICT BlJAPUR.-After the raking out of the old and decayed mortar, all joints and cavities in the masonry of the *sikhara* and walls of the Papanatha temple were recess-pointed and filled with mortar. In order to stop the entry of bats, expanded-metal shutters were fixed in the openings. Disturbed stone pavement in the Jaina.temple was repaired by the re-setting of the available stones and replacement of the missing ones. The pavement in the *pradakshina-patha* of the Galagnatha temple was pointed and missing stone replaced. The open joints in the masonry of the *sikhara* and walls of the Kada-Siddhesvara temple were raked out to remove decayed mortar and repointed in lime-cement to render the temple watertight. Similar repairs were undertaken to the roof of Sangamesvara temple.

259. KAMALESVARA TEMPLE, BALAMBID, DISTRICT DHARWAR.—Barbed-wire fencing with a turnstile gate was provided around the temple.

260. TEMPLES, LAKKUNDI, DISTRICT DHARWAR.—Expanded-metal doors were provided to the temples.

261. BASAVANNADEVA TEMPLE, TAMBUR, DISTRICT DHARWAR.—After the removal of debris and the decayed mortar from the terrace fresh concrete was laid to make the roof watertight. Modern accretions were removed and expanded-metal frames provided in the openings to stop the nuisance of bats.

262. CHANDRANATHESVARA TEMPLE, TJNKAL, DISTRICT DHARWAR.—Steps were constructed for providing a proper approach to the temple.

263. FORT, GULBARGA.—Besides the clearance of jungle, the intrados and extrados of some of the domes of the mosque in the fort were made watertight with plaster after the removal of the decayed plaster. Expanded-metal frames were fixed in the openings of the mosque to stop nuisance of bats.

264. HAFT-GUMBAD, GULBARGA.—The floors of the tombs were concreted.

WESTERN CIRCLE

Gujarat

265. AHMAD SHAH'S MOSQUE, AHMADABAD.—The missing parts of the perforated window-panels were replaced by new ones of the same design.

266. MALAV TANK, DHOLKA, DISTRICT AHMADABAD.—The bulged-out and fallen masonry of the central pavilion was repaired (pl. XCVII). The hollows in the pillars

supporting the bridge leading to the pavilion were filled with cement-concrete and the stability of the bridge ensured.

267. EXCAVATED REMAINS, LOTHAL (SARAGWALA), DISTRICT AHMADABAD.—An earthen bund was raised around the site to prevent flood-water from submerging the remains. The tops of some of the exposed structures were made watertight.

268. HAZIRA, DANTESWAR, BARODA.-A part of the broken and missing carved stone-*jali* in the south-west corner of the tomb was partly repaired. The work is in progress.

269. HIRA GATE, DABHOI, DISTRICT BARODA.-In continuation of previous year's work *(1958-59,* p. 112), the western face of the southern flanking-wall of the Hira pate, which had bulged out, was dismantled and rebuilt, and its top was rendered watertight. The carved stones and sculptures recovered from the core of the masonry were arranged in the courtyard of the gate.

270. TENTALAV, TENTALAV, DISTRICT BARODA.-The sunken and dislodged stones of the ashlar-masonry on the southern side of the eastern ramp were re-set in position. The fallen coping-stones of the parapet-wall on the east were recovered from the tank and stacked outside for future use.

271. GROUP OF MONUMENTS, CHAMPANER, DISTRICT PANCH-MAHALS.—The overhanging window with a projecting balcony between the bastions of the Halol gate was strengthened by filling the gap below it in ashlar-masonry. The bulged-out portions of the inner face of the city-wall between the first and second bastions to the east of the Halol gate were re-set in position.

272. HILL-FORT, PAVAGADH, DISTRICT PANCH-MAHALS.-The fallen bastion of the Godhra gate was rebuilt in ashlar-masonry with available stones. The tops of the bastions and the adjacent wall were made watertight. The inner surface of the flanking-wall of Gate 3 was underpinned in rubble-masonry to ensure the stability of the gate. The fallen wall on the northern side of the gate was rebuilt in rubble-masonry. The decayed and cracked plaster over the terrace of the Navlakha-Kothar was removed and fresh lime-cement concrete laid to make the roof watertight.

273. UPARKOT BUDDHIST CAVES, JUNAGADH, DISTRICT SORATH.—A masonry parapet-wall was built and pitching in rubble-masonry done to the south and west of the exposed area.

274. RAHMAT-BIBI-KI-MASJID. MANGROL, DISTRICT SORATH.-The decayed and spongy concrete from the terrace of the mosque was removed and fresh concrete laid. The displaced stones of the courtyard and prayer-hall were re-set on a cushion of cement-concrete after the removal of roots of shrubs from the joints.

Rajasthan

275. GROUP OF TEMPLES. ARTHUNA, DISTRICT BANSWARA.-The displaced stone slabs of the pavement of the Nilakantha-Mahadeva temple were taken out and re-set over a concrete cushion. Similar repairs were undertaken to the temple situated opposite the Kumbhesvara temple and the two small shrines between the Krishna and Nilakantha-Mahadeva temples. A portion of the ashlar-masonry wall of the Kumbhesvara temple which had been out of plumb, was taken down and rebuilt. Repairs to the dome over the

sabha-mandapa of the temple are in progress. A temple near the Kumbhesvara was also attended to by way of rebuilding the out-of-plumb plinth-masonry. Another small shrine near this temple was completely dismantled and rebuilt.

276. SECOND INSCRIPTION, BIJOLIA, DISTRICT BHILWARA.-A shed was constructed over the inscription for its protection against sun and rain.

277. UNDESVARA TEMPLE, BUOLIA, DISTRICT BHILWARA.—The roof of the *sabha-mandapa* was made watertight by the re-setting of the roof-slabs in cement-mortar. The bulged-out masonry of the facade was dismantled and rebuilt at its proper place.

278. GROUP OF MONUMENTS, FORT, CHITORGARH.—The Mahadeva temple situated within Rana Kumbha's palace was repaired by the replacement of all the broken structural members like brackets and lintels and re-erection of the tilted pillars in a vertical position. The flat terrace was made watertight.

The repairs to the Zanana-Mahal commenced last year were completed (pl . XCVIII) and the tilted balconies re-set in their original position after the replacement of the cracked brackets below them and three lintels of the lower dome. Fresh lime-concrete flooring was laid in the room after the removal of the dead lime-concrete. The open courtyard in front of the Mahal was excavated to its original level and a polished-stone pavement was exposed to view. The removal of late accretions brought to light a platform in ashlar-masonry having an ornamental *kakshasana* in front.

The spongy roof of the *sabha-mandapa* of the Siva temple behind the Mira-Mahal was made watertight with new concrete after the re-setting of the disturbed ceiling-stones. The brick *sikhara* of the temple was underpinned in carved brickwork (pl. XCIX). The sunken and damaged stone pavement in the *garbha-griha* and *pradakshina-patha* was re-laid, and an apron of stone flooring was provided on the three sides of the temple. A concealed drain was also provided to drain out rain-water.

Extensive repairs were undertaken to Fattah's palace, by way of providing two rings of reinforced cement-concrete beams and pillars in the core of the superstructure of the walls of this three-storeyed structure at the places where wooden beams and pillars had originally existed. This necessitated the rebuilding of the masonry of the facade to keep the reinforced-concrete rings concealed within the masonry. Besides, the missing lintels were replaced by stone lintels, cracks filled, open joints in the masonry pointed and the existing plaster-patches repaired.

A later accretion in the western part of Ratan Singh's palace was removed and the walls thus exposed were rendered watertight. The large terrace of the Zanana apartment was concreted after the removal of the dead lime-concrete. The bastion on the western side of the palace was underpinned and wide cracks in its masonry filled by grouting and masonry.

The displaced masonry of the tank by the side of the Ratnesvara temple was dismantled; the work of re-setting it is in progress.

The jungle-growth and debris of the fallen structures of Allah Kabra s house were cleared and its original features brought to light. The main structure was underpinned and all cracks filled up. The broken or missing lintels of the doorways were replaced and the damaged stone flooring re-laid with new ones. All the walls of the fallen structures were made watertight (pl. C).

Apart from these repairs, the lawns and garden in Padmim's palace were improved and the ruined structures in front of the Mira-Mahal were made watertight and partially rebuilt. Extensive clearance was undertaken around Rana Kumbha's palace, Banbir's wall, Sati-enclosure, Fattah's house and Padmini's palace. Approaches to the monuments were dressed and *mourm* spread over them.

279. MAHAKALA TEMPLE, MENAL, DISTRICT CHITORGARH.-Some roof-slabs of the *sabha-mandapa* were taken down and refixed in cement-lime mortar to make the roof watertight. The work is in progress.

280. GROUP OF TEMPLES, KUMBHALGARH, DISTRICT UDA1PUR. -The uneven and displaced pavement-stones of the Parsvanatha and Pichala-devi temples were properly re-set on concrete. The fallen portions of the compound-wall of the former were also re-built. Jungle was removed from around the Golerao temple.

281. SAS-BAHU TEMPLES, NAGDA, DISTRICT UDAIPUR.-The displaced pavement-slabs between the two temples were re-set after necessary dressing on a concrete cushion. The sunken and out-of-plumb ashlar-masonry of the subsidiary shrines situated in the front and back sides of the temple was re-set on a concrete bedding, with the restoration of their plinths to the original level.

MONUMENTS MAINTAINED BY STATES

GUJARAT STATE

A general clearance of debris was undertaken and descriptive notices fixed at the following monuments:

1. SIVA TEMPLE, KERA, DISTRICT KUTCH.
2. SIVA TEMPLE, KOTAI, DISTRICT KUTCH.
3. SWA TEMPLE, POONVAROGADH, DISTRICT KUTCH.

KERALA STATE

The following monuments were attended to:

4. KIZHTHALI TEMPLE, METHALA, DISTRICT TRICHUR.
5. IMAGES OF NAGARAJA AND NAGAYAKSHI, TRICHUR.
6. PALACE-GATES, TRICHUR.
7. TOMB OF SAKTAN THAMPURAM, TRICHUR.

MADHYA PRADESH STATE

8. OLD CHHATTRIS, CHANDERI, DISTRICT GUNA.— The *chhattris* of Bharat Shah, Devi Singh and Anaruddha Singh, the Pachmadhi and Rani-ka-Gumbaz were repaired by way of filling all cracks, pointing open joints and clearing rank vegetation.

9. MONUMENTS, GWALIOR.-The Gujari-Mahal and *chhattri* of Rani Lakshmibai were kept in good repairs.

10. SIVA TEMPLE, BARDALA, DISTRICT JHABUA.-Vegetation was removed and minor repairs undertaken.

11. SIVA TEMPLE, MALWAI, DISTRICT JHABUA.—The joints and cracks in the masonry were grouted and sealed. Extensive jungle-clearance was done around the temple.

12. TEMPLE, CHORPURA, DISTRICT SH1VPURI.—The cracks and joints in the walls of the temple were grouted and pointed. All vegetation was removed, the surroundings dressed and the approach-road attended to.

13. FORT, NARWAR, DISTRICT SHIVPURI.—Besides an extensive clearance of vegetation, the roofs and floors of the standing structures were repaired.

14. SUN TEMPLE, MADKHERA, DISTRICT TIKAMGARH.—The tilted *sikhara* of this temple was set right. All cracks and joints were grouted and pointed.

ORISSA STATE

The following monuments received attention:

15. MANIKYESVARA TEMPLE, SHUKLESWAR, DISTRICT CUTTACK.

16. KUSALESVARA TEMPLE, DEOGAN, DISTRICT KEONJHAR.

17. MOHINI TEMPLE, BHUBANESWAR, DISTRICT PURI.

18. KUNDALESVARA TEMPLE, PRATAPRUDRAPUR, DISTRICT PURI.

RAJASTHAN STATE

The following monuments received attention:

19. AKBAR'S FORT, AJMER.

20. ANCIENT REMAINS, BAGHERA, DISTRICT AJMER.

21. GOPINATHAJI TEMPLE, SARAWAR, DISTRICT AJMER.

22. SIVA TEMPLE, THANWALA, DISTRICT AJMER.

X. ARCHAEOLOGICAL CHEMISTRY[1]

TREATMENT OF MONUMENTS AND PAINTINGS

ANDHRA PRADESH

1 V1RABHADRASVAMI TEMPLE, LEPAKSH1, DISTRICT ANANTAPUR.-The paintings on the ceiling of the Vishnu shrine in the interior of the temple, depicting the *avtaras* of Vishnu, were cleaned and consolidated. The hardened accretions of soot and oil on the paintings on the ceiling of the central hall could be removed only by a repeated use of detergents, organic solvents and other reagents. A large painted figure of Virabhadra was brought to light.

2 CAVES, MOGHALRAJAPURAM AND UNDAVALLI, DISTRICT KRISHNA.—The affected sculptures and inscriptions were treated and preserved.

BIHAR

3 EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—The Stucco figures on the eastern facade of Site 3, which had been showing signs of flaking, were subjected to necessary treatment and thus rendered safe for at least a few years.

4. FORT, ROHTASGARH, DISTRICT SHAHABAD.—Considerable progress was made in the treatment and preservation of the paintings in the fort. The painted surface was cleaned and the loose pigments fixed to the ground.

5 SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—Normal cleaning and consolidation of the weathering stonework and inscriptions were carried out.

DELHI

6. RED FORT, DELHI.—The balcony in the Diwan-i-'Am, coated with age-long accretions of dust and greasy deposits, which had obscured the designs of the inlay-work and the colour of the stones, was taken up for cleaning. After a treatment with organic reagents detergents and other mild chemicals the marble-throne was restored to its original condition and the details of decoration were effectively brought out. The work is in progress.

The exquisitely-carved marble *jali* in the Diwan-i-Khas had become dark on account of various accumulations. A systematic cleaning resulted in the complete elimination of all injurious and discolouring accretions and the details of the intricate patterns were fully brought out. The work will continue.

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[1]Infonnation from the Chemistry Branch of the Department.

Work was also initiated on the cleaning and preservation of the golden paintings on the ceiling of the Diwan-i-Khas. It consisted of the removal of accumulations, fixation of flaking pigments to the ground and consolidation of the painted surface as a whole. The results were encouraging.

GUJARAT

7. TAMBEKARWADA, BARODA.—Treatment and preservation of the wall-paintings, in progress from previous years (*1957-58,* p. 108), was completed, including the preparation of photographic records, both in black-and-white and colour, and of sketches. The paintings have now been given a fresh lease of life.

8. DARBARGARH, SIHOR, DISTRICT GOHELWAR.—The treatment of the paint ings was carried out intensely and the major part of the work was completed by the removal of dust, dirt and lime-streaks, fixation of flaking pigments and consolidation of the painted surface.

MADHYA PRADESH

9. MUGHUL HAMAM, BURHANPUR.—The paintings in the monument (*1958-59,* p. 119) were subjected to necessary cleaning and preservation. Accretions of mud, lime, dust, etc., were suitably dealt with and the painted surface consolidated with preservatives. The work is in progress.

10. KANDARIYA-MAHADEVA TEMPLE, KHAJURAKO, DISTRICT CHHATARPUR.—The elimination of vegetational and other injurious accretions was completed in continuation of the earlier work (*1958-59,* p. 118) and the surface subjected to fungicidal and preservative treatment. In the course of the treatment, some restorations and repairs done in plaster in the past were brought to light.

11. ROCK-CUT CAVES, BAGH, DISTRICT DHAR.—Work on the paintings was continued (7958-59, p. 119). Accretions of tarry soot and smoke were eliminated over parts by suitably-prepared solvents, detergents and restrainers and satisfactory results obtained (pls. CI and CV A). The problem of heavy deposits of salts on ceilings and walls, the consequence of water-percaution, is being studied.

12. JAINA COLOSSI, FORT GWALIOR.—The rock-cut statues in the caves were subjected to elaborate cleaning and preservative treatment; the greater part of the work was completed.

MADRAS

13. BRIHADISVARA TEMPLE, THANJAVUR.-The recent accumulations of dust, dirt, etc., on the previously-cleaned painted surface in Chambers 14 and 15, which contain only Nayaka paintings, were removed by a general cleaning.

14. TIRUVALANATHASVAMI TEMPLE, TIRUVALISWARAM, DISTRICT TIRUNELVELI.—The lime-coated and moss-covered inscriptions on the outer and inner sides of the main compound-walls and on the outer sides of the Siva and Parvati shrines were taken up

for treatment. Cleaning was successfully effected by the use of such chemicals as ammonia, zinc silicofluoride, Teepol and Santobrite.

MAHARASHTRA

15. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGAIlAD.-The cleaning of the paintings in Cave 17 was continued *(1958-59,* p. 118). The coats or shellac on the wall of the northern aisle were removed and the paintings preserved thereafter. Shellac had been previously applied on the paintings on the wall of the western aisle even without a preliminary cleaning of the soot- and dirt-covered surface, rendering the cleaning of the paintings thereon all the more difficult. With the use of mixtures of organic solvents in different proportions, the shellac was successfully removed and beautiful male and female figures, one of the latter vyith a rare hair-style, were brought to light (pl. CII). Filleting of loose stucco with suitably-tinted plaster of Paris and fixing of loose paint-films were simultaneaously attended to.

16. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—In Cave 32 the broken edges of painted stuccos, tending to peel off at a number of places, were filleted in continuation of previous work *(1958-59,* p. 118).

17. MAHAKALI TEMPLE, CHANDA.-The paintings, the treatment of which had been completed last year *(1958-58,* p. 118), were documented by photographs. The newly-exposed paintings were taken up for general cleaning and consolidation.

18. TEMPLES AND LOOSE SCULPTURES, MARKANDI, DISTRICT CHANDA.—The work initiated last year *(1958-59,* p. 118) was continued and completed this year.

19. ROCK-CUT CAVES, BHAJA AND KARLA, DISTRICT POONA.-Some Sculptures, including the pillar with a lion-capital in front of the Main Chaitya at Karla, were treated and preserved with a view to the elimination of recently-formed accretions.

MYSORE

20. ASAR-MAHAL, BIJAPUR.—The recent deposition of dust, insect-nests, etc., on the previously-treated paintings *(1956-57,* p. 65) was removed by a general cleaning. '

21. DARYA-DAULAT-BAGH, SRIRANGAPATNA, DISTRICT MANDYA.-The paintings on the walls of the first floor of the palace were taken up for cleaning in continuation of previous work *(1958-59,* p. 119). The painted canvas had been hanging loose in a torn condition at many places. Such patches were carefully fixed to the ground by a concentrated solution of vinyl acetate. The entire painted surface of the walls and ceilings of the central hall and antechambers was cleaned and consolidated with preservatives (pl. CII I).

ORISSA

22. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURI.-Arrangements for the treatment of the *bhoga-mandapa* of the Lingaraja temple, the *deul* and j*agamohana* of which had been treated in previous years *(1958-59,* p. 119), were completed, and the work will be taken up shortly.

23. RAJARANI TEMPLE, BHUBANESWAR, DISTRICT PURL—The greater part of the work of the clearance of moss and lichen *(1958-59*, p. 120) was completed.

24. MAYADEVI TEMPLE, K.ONARAK, DISTRICT PUR I.—Materials necessary for the treatment of the temple were procured and experiments conducted for the finding of a suitable waterproofing material which could be used after the stonework had been freed of soluble salts and consolidated.

PANJAB

25. TEMPLE, BAUNATH, DISTRICT KANGRA.—Work on this temple was continued *(1958-59, p.* 120) throughout the year and the greater part of moss and lichen was eliminated. The stonework will be subjected to preservative treatment after the removal of all vegetation, injurious accretions and salts and a fungicidal treatment.

UTTAR PRADESH

26. CHINI-KA-RAUZA, AGRA.—The deteriorating glazed tiles on the facade of the monument were taken up for treatment with a view to the consolidation of the remnants and elimination of injurious accretions therefrom. A considerable portion was subjected to treatment, as a result of which flaking, chipping and falling of the tiles were arrested and their original colour was revived as far as possible. The surface was suitably impregnated to ward off the deleterious effects of moisture. The problem of the fading of the colours of the tiles was investigated, and it was found that organic solvents and mild reagents having little alkaline reaction could be safely employed in cleaning and consolidation.

Remnants of paintings inside the monument were observed to be heavily coated with various accretions. A scheme of treatment was, therefore, initiated and essential items of chemical solvents and other materials procured.

27. 'ITIMADU'D-DAULA'S TOMB, AGRA.—Finishing touches were given to the already-treated painted surfaces *(1958-59*, p. 120) and a complete photographic record of the paintings prepared (pl. CVB).

28. AKBAR'S TOMB, SIKANDARA, DISTRICT AGRA.-The cleaning of the marble *jali (1958-59*, p. 120) was completed.

29. TEMPLE, BAUNATH, DISTRICT ALMORA.—The stonework of the temple was treated and protected with preservatives.

30. TEMPLE, JAGESWAR, DISTRICT ALMORA.—The decorative and inscribed stonework was treated and preserved.

31. EXCAVATED REMAINS, JAGATGRAM, KALSI, DISTRICT DEHRA DUN.—The moss-and salt-affected brickwork (*1957-58*, p. 110) was subjected to a general and preservative treatment.

32. NIRVANA AND MATHAKUAR SHRINES, K.USINAGARA, DISTRICT DEORIA.—The work of regilding the images in the shrines and elimination of soluble salts therefrom presented some problems for investigation. Suitable adhesives for fixing gold leaves were experimented with and the results obtained will now be utilized.

33 FORT TALBAHAT, DISTRICT JHANSI.—Accretions of dust, dirt and grease on the paintings in the Narasimha temple (1957-58, p.111) were removed and fresh preservatives applied as necessary. The results were satisfactory (pl. CIV).

34 TEMPLE BHITARGAON, DISTRICT KANPUR.-The famous temple was showing signs of decay and the terracotta plaques on its upper facade were disintegrating. Chemical conservation was, therefore, undertaken and much progress registered in the cleaning and preservation of the plaques.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM-EXHIBITS

Nearly eleven hundred antiquities of different types, belonging to different organiza-tions were subjected to chemical treatment and preservative process. They comprised meta and terracotta objects and canvas-paintings, some of which presented complicated problems of conservation. By employing selected reagents in suitable concentrations and under con-trolled conditions, all of them were successfully treated, mended and preserved (cf. pls. CVI and CVII).

ANALYSIS AND RESEARCH

1 GEOCHRONOLOGICAL STUDIES.—Heavy-mineral analysis of soils from the excavated trenches at Birbhanpur, District Burdwan (*1958-59*, p.. 121) was completed. Soil-samples from Lethal, District Ahmadabad and Rangpur District Jhalawar (*1958-59*, p. 121) were further examined and heavy-mineral analysis completed. Work on the samples from rockshe-shelters at Adamgarh, District Hoshangabad, continued (*1958-59*, p. 121). The lateritic area in the neighbourhood of Nellore, Andhra Pradesh, was explored and several samples were collected from the high- and low-level laterite-formation or deposits. The problems of their origin and of the environmental conditions of their formation or deposition are under examination.

2 PRESERVATION OF PAINTINGS.—Attention was directed to the study of the methods of softening brittle pigment-layers of ancient paintings before refixing them to the ground Experiments were conducted in the laboratory for the evolving of suitable reagents for such softening, and the collected data are being further examined for the determination of the most suitable mixture of reagents and detergents.

3 ERADICATION OF VEGETATION.—Experiments on the use of naphthenates, initiated last year (*1958-59*, p. 122), were continued. Hydrofluosilicic acid was experimented with for the rapid eradication of algae, moss, etc., from stonework, but it was seen that though its action was fairly quick its corrosive action of calcareous and otherwise soft and norous rocks was pronounced.

Satisfactory experiments were conducted with Silicaseal Antifungus Solution on rocks overerown with lichen at Lepakshi, Tiruvaliswaram and Sravanabelgola in south India. A series of experiments in the laboratory and in the field was conducted with Santobrite, Nupin, Teepol oxalic acid and acetic acid for the removal of lichen and layers of limewash from monuments.

4 STUDY OF CERAMICS.—Attempts were made to synthesize the Northern Black Polished Ware in laboratory under carefully-controlled conditions, employing materials of definitely-known composition and firing at different temperatures. The investigation

corroborated the already-published results *(1955-56*, p. 56) on the composition and technique of the Ware, though the exact conditions of firing and the nature of the ferruginous material employed in its manufacture still remained elusive.

A systematic study of fortyseven sherds from different levels of Rangpur, District Jhalawar, led to interesting results, which will be published in the report on the excavation of the site. The detailed examination of the technique of manufacture of another lot of sherds from the same site and its comparison with the ceramics of Mohenjo-daro is under way.

Some glazed sherds from Saidpur-Bhitri, District Ghazipur, were subjected to chemical analysis as a part of the investigation into ancient glazes. A large number of glass samples from Kopia, District Basti, were also analysed. The results are being systematized.

XI. ARCHAEOLOGICAL GARDENS[1]

ANDHRA PRADESH

1. HILL-TOP, KAGARJUNAKONDA, DISTRICT GUNTUR.—The major improvements were confined to judicious pruning and lopping of all the wild trees in Enclosure I and planting of a few ornamental shrubs, creepers, hardy cacti and succulents around the museum-building under construction.

DELHI

2. QUTB, DELHI.—Seven old lawns which had outlived their normal lives were returfed. They included the plot around the sun-dial and those opposite the Dak Bungalow. The rustic garden started last year (*1958-59*, p. 123) was further extended and improved and was provided with some picnic-spots.

3. RED FORT, DELHI.—Seven lawns, two large ones in between the Diwan-i-'Am and Naubat-khana and five opposite Rang-Mahal, were returfed after lowering, so that rain-water could flow into the central cistern and the foundation of the Rang-Mahal was not affected. Most of the unwieldy accacia trees in the peripheral boundary and other trees and shrubberies were pruned.

4. 'ABDUR RAHIM KHAN-I-KHANAN'S TOMB, NEW DELHI—The lawns were cheeled and the roots of the fine-quality grass were obtained for use in other gardens.

5. HAUZ-KHAS, NEW DELHI.—To improve the irrigation-facilities, a 5/6 horse power oil-engine and pump were installed. A continuous and efficient water-supply has thus been ensured.

6. HUMAYUN'S TOMB, NEW DELHI.-The rustic park started last year (*1958-59*, p. 113) was further beautified by the turfing of all the virgin patches and the re-setting of the irregular, paths. The garden as a whole received thorough attention and was maintained in a good condition. Arrangements were made to edge the lawns with dressed red sandstone slabs. The outdoor nursery was extended by cutting many more beds. Many varieties of seeds and cuttings were sown and planted. The budding of roses was extensively done and large quantities of annual seeds were collected. The indoor nursery also received attention. The beds were re-aligned and filled with new varieties of plants. Many good varieties of bougainvilias, rare palms and other perennial plants were introduced from Calcutta and other places. The area opposite the glass-house was paved with stones available at the site, space being tnus provided for the stocking and growing of hardy perennials. The enclosed nursery was thoroughly overhauled and improved. Propagation-activities were increased to a great extent.

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[1] Information from: 13. the Director of Archaeology, Kerala State; 15, the Chief Superintendent of Archaeology and Museums, Rajasthan State; and the rest, the Garden Superintendent of the Department.

7. JANTAR-MANTAR, NEW DELHI.—Many improvements were carried out to this garden, recently taken over by the. Department, in the way of improving the texture and levels of the lawns. Iresene-edges were introduced on either side of the main road.

8. NAJAF KHAN'S TOMB, NEW DELHI.—The garden was overhauled and thereafter kept in a nice condition. Chceling and levelling of the lawns were done and some superfluous planting removed. A small circular area around the old well was returfed with superior grass and was embellished on its border with ornamental edgings. Most of the gaps were filled up with suitable plants.

9. LODI TOMBS, NEW DELHI.—Most of the trees were shaped in order to expose the vistas and to keep the trees trim.

10. PURANA QILA, NEW DELHI.—The garden attached to the mosque was well-maintained and some flower-beds and ornamental edges were introduced. The accacia-plantation was also looked after.

11. SAFDARJANG's TOMB, NEW DELHI,--The old dilapidated water-cisterns opposite both the *baradaris* were renovated and water with fish and fish-plants stocked therein. Additional flower-beds were cut and some of the old ones re-oriented.

MADHYA PRADESH

12. GROUP OF TEMPLES, KHAJURAHO, DISTRICT CHHATARPUR.—The entire low-lying area behind the Visvanatha temple was filled up with earth, dressed and levelled. An old dilapidated well was cleaned and its inner wall repaired. About 7 acres of uneven land were dressed, levelled and turfed. A path was made along the periphery of the garden with old brickbats. A huge dump of earth behind the Matangesvara temple was dressed, levelled and planted with hardy shrubs. All the other gardening-operations were attended to and the garden kept in tidy condition.

The area around the Chausath-yogini temple, till now lying in a neglected and wild condition, was cleaned, dressed and planted with hardy shrubs, succulents and trees.

MADRAS

13. PALACE AND MUSEUM, PADMANABHAPURAM, DISTRICT KANYAKUMARI.—A beautiful garden, with jasmine, rose, ossium and other plants, but none with gaudy colours, was grown around and in front of the Palace and Museum. Shade-giving trees were planted.

RAJASTHAN

14. PALACE-GARDEN, DIG, DISTRICT BHARATPUR.—The gardens attached to palaces at Dig were taken over on the 1st August, 1959. Judicious pruning of all the shrubs, hedges and trees was done. All the rose-beds of the garden, infested with weeds, were thoroughly cleaned and the rose-plants pruned and manured to give a vigorous growth and good-quality bloom. Apart from roses, seasonal annuals were also displayed in the beds, giving good effect throughout the year. The general standard of maintenance was raised by timely attention to various cultural operations.

15. MISCELLANEOUS GARDENS.—The Dil-aram garden at Amber, the lawn in the observatory at Jaipur and the gardens attached to the monuments at Jodhpur and Mandor and to the Museum at Bharatpur were properly attended to. The Mohan-bari at Amber is under plantation.

UTTAR PRADESH

16. FORT, AGRA.—This important garden was given special attention. All the lawns were copiously manured with chemical fertilizers and watered regularly, which thus greatly enhanced their beauty. The shrubberies, roses and flower-beds also received proper attention and were at their best in the season. Bougainvilias, lantanas and thujas were also introduced at appropriate places. A jasminum-garden was laid out for the first time near the Jasminum tower. Plants of different species of jasminum planted during early rains established themselves well.

The lawns in the Machhi-Bhawan, Jahangiri-Mahal and Diwan-i-'Am were edged with red stones.

17. 'ITIMADU'D-DAULA'S TOMB, AGRA.—The laying-out of pipe-lines inside the garden was completed. The other major improvements included the introduction of long canna-beds, roses and plants of *saru* at appropriate places. The lawns were kept in a perfect condition by the timely application of fertilizers followed by irrigation and mowing. The fountains were played on special occasions.

18. KHAN-I-'ALAM, AGRA.—A number of good species of flowering trees, shrubs, creepers, roses, chrysanthemums, crotons, caladiums, cacti, succulents, dracena and orchids were introduced, thus enriching the nursery-stock. Propagational activities in general and of roses in particular were intensified to meet the growing demands of all the archaeological gardens in India.

19. RAM-BAGH, AGRA.—Underground pipes were laid out to supply water uniformly to different parts of this extensive garden. The entire garden was kept in a good condition by timely attention to all cultural operations. The virgin fields were planted with good-quality *Banarsi-amla,* and *phalsa* was planted as an inter-crop.

A considerable number of fruit-plants, viz., mulberries, guavas, *kamrakhs,* grapes, figs and varieties of citrus were raised in nursery-beds, besides the multiplication of ornamental shrubs, creepers and flowering trees.

20. TAJ-MAHAL, AGRA.—One of the three old tanks over the main gate of the Khan-i-'Alam was repaired and water-supply restored from the main Khan-i-'Alam tube-well to run the old fountain pipe-line. After a correct alignment and replacement of the old fountain-jets with new ones, the fountains now shoot up to a height of 15 to 18 ft., thus making the surroundings beautiful and resulting in an increase of the playing-hours. Four front plots of the Taj were grassed with superior grass. Returfing of the entire *saru*-plants along the eastern and western channels in the garden, which had half decayed and were uncouth, were replaced by plants of a uniform size, acclimatized previously in the nursery. The seasonal annuals were transplanted in the beds and displayed throughout the year. The diagonal vistas were opened by judicious pruning, thus partially exposing the Mihman-khana and mosque. The old stoneware pipe-line was replaced with cast-iron pipes with valves at appropriate places; this has greatly facilitated the irrigation of the garden.

ARCHAEOLOGICAL GARDENS

The misused plots in front of the Saheli-Burj and Fatehpuri mosque were turned into nice lawns, dotted with flowering shrubs and seasonal flower-beds. The old fountain in front of the mosque was revived.

The area around the Kali-Masjid, lying in a most neglected condition, was thoroughly cleaned and the grounds dressed up for laying out a garden. In order to ensure an adequate water-supply, an old well in this plot was renovated and a 5-in. boring done together with the installation of a centrifugal pump.

21. AKBAR'S TOMB, SIKANDRA, DISTRICT AGRA.—Despite shortage of water in this garden, the neglected plots in the forecourt were turfed this year. The strip of land on either side of the road leading to the rest-house was returfed with superior grass. All the plots adjoining the main structure, which had been full of jungle-growth, were scrupulously cleaned. The leading hydrants were repaired and the water-supply restored to a normal position.

22. MARIAM'S TOMB, SIKANDRA, DISTRICT AGRA.—Grassing-operations, laying out of a shrubbery-border along the wall and planting of suitable trees were done. The water-problem was solved by the installation of a 10-11 horse-power engine for operating a centrifugal pump fitted to the existing well. Annual beds were carved out in the plots adjoining monuments for the first time to provide a colour-effect.

23. RESIDENCY, LUCKNOW.—Soon after the taking over of this garden on the 1st April, 1959, all possible efforts were made to improve the general condition of the garden. The entire area was scrupulously cleaned. The old lawns were cheeled, dressed and levelled; and the plot adjoining the municipal road, comprising an area of 6 acres, was dug up, levelled and grassed with good-quality grass; different varieties of bougainvilias were planted along the slopes to impart a colour-effect. Some patches in the cemetery-area were also grassed for the first time. A small nursery was established to meet the requirements of plants for the development of the garden.

Large number of shrubs, ornamental trees, bulbous plants, palms, etc., were planted at appropriate places, besides the laying out of a protective hedge along the boundary-wall of the garden to prevent intruders.

One of the limiting factors for the satisfactory maintenance of the garden was inadequate water, as the old pumping-plant installed in one of the wells had become ineffective. The old bore was thoroughly cleaned and a pumping-set was installed connecting the suction-pipe of the pump directly to the boring-tube. This arrangement has augmented the water-supply, besides eliminating the danger of a further choking of the bore. Further, a new 5-in. boring was successfully undertaken in one of the old wells and was fitted with another pumping-set.

XII. PUBLICATIONS

PUBLICATIONS OF THE DEPARTMENT

1. 'ANCIENT INDIA'.-Number 15 (1959) of the journal was published.

2. 'ANNUAL REPORT ON INDIAN EPIGRAPHY'.—The Reports for 1952-53 and 1953-54 were published. Reports for 1954-55 and 1955-56 will be released shortly and those for 1956-57 and 1957-58 are going through the press.

3. 'CORPUS INSCRIPTIONUM INDICARUM'.-Part ii of volume II, *Bharhut Inscriptions,* by H. Lueders, revised by E. Waldschmidt, and volume VI, *Inscriptions of the Vakatakas*, by V. V. Mirashi, are at the proof-stage.

4. 'EPIGRAPHIA INDJCA'.-The following parts were published: parts iii (July 1957), iv (October 1957), v (January 1958), vi (April 1958) and vii (July 1958) of volume XXXII, and i (January 1959) of volume XXXIII.

Parts viii (October 1956) of volume XXXI and ii (April 1959), iii (July 1959), iv (October 1959), v (January 1960), vi (April 1960) and vii (July 1960) of volume XXIII were passed for final printing.

Parts i (January 1960, ii (April 1961) and iii (July 1961) of volume XXXIV are at the proof-stage. The matter for parts viii (October 1958) of volume XXII and iv (October 1961), v (January 1962) and vi (April 1962) of volume XXXV are in the press.

5. 'EPIGRAPHIA INDICA—ARABIC AND PERSIAN INSCRIPTIONS SUPPLEMENT'.—The number for 1955-56 will be out shortly and that for 1957-58 is at the proof-stage.

6. GUIDE-BOOKS.—The following were reprinted : *Nalanda* by A. Ghosh and *Ajanta* by D. Mitra. *Udayagiri* and *Khandagiri* by the latter will be out shortly. *Chola Temples* by C. Sivaramamurti is in the press.

The Hindi versions «f *Rajgir, Kusinagara* and *Ajanta* will be published shortly; those of *Sravasti* and *Sanchi* are going through the press.

7. 'INDIAN ARCHAEOLOGY—A REVIEW.-The number for 1958-59 was published.

8. 'MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA'.—Number 74. *Kausambi,* by G. R. Sharma, is under print.

9. PICTURE-POSTCARDS—The sets of Ajanta (both black-and-white and in colour), Mandu, Khajuraho, Aurangabad and Daulatabad and Bijapur were reprinted. New sets of Hampi, Bhubaneswar (Sets A and B) and Konarak (Sets A and B) were printed.

10. 'SOUTH INDIAN INSCRIPTIONS'.—Volume XIV, *inscriptions of the Early and Medieval Fandyas,* were passed for printing. Part ii of volume XV, *Bombay-Ka'matak Inscriptions,* and volume XVII, *Inscriptions collected during 1903-04,* are at the proof-stage. Part iv of volume XV, *Bombay-Karnatak Inscriptions,* is in the press.

11. TEMPLE-ARCHITECTURE' SERIES.-*THE Cave-temples of the Pallavas,* by K. R. Srinivasan, is passing through the press.

OTHER PUBLICATIONS

1. 'AKOTA BRONZES'.—The Government of Bombay published a monograph entitled *Akota Bronzes*, by U. P. Shah.

2. INSCRIPTIONS AND MANUSCRIPTS OF ORISSA.—The Department of Archaeology and Museums, Government of Orissa, published the following : *Inscriptions of Orissa* and *Descriptive Catalogues of Pam -leaf Manuscripts.*

3. MONUMENTS IN UTTAR PRADESH.—In the series 'Cultural Centres of Uttar Pradesh', the Government of Uttar Pradesh published *Kus'magara*, by R. K. Dikshit. *Sravasti* and *Sankissa* jn the same series, respectively by K. D. Bajpai and Rai Govinda Chandra, are in the press.

4. MUSEUM-PUBLICATIONS.—The Central Museum, Indore, published a set of picture-postcards.

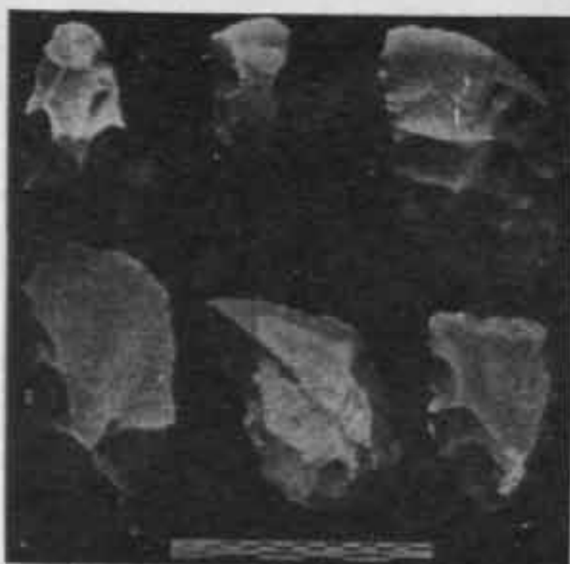
The Chief Superintendent of Archaeology and Museums, Rajasthan State, published the following: *Art Treasures from Jodhpur Museum; Art Treasures from Bikaner Museum; Sculptures from Bharatpur Museum; Sculptures from Udaipur Museum; Arms from Alwar Museum*; and *Raga-Ragini Miniatures from Central Museum, Jaipur*.

The Museum and Picture-gallery, Baroda, published a special number of its *Bulle-tin*, 'Sculptures of Roda and Samalji'. It also published a set of picture-postcards.

5. REPORT ON KUMRAHAR EXCAVATIONS, 1951-55.—The report, by A.S. Altekar and V. Mishra, was published by the K. P. Jayaswal Research Institute, Patna.



A



B



C

Nagarjunakonda ; A, *section through the palaeolithic site (scale of feet)*; B, *tools from layer 7*; C, *blade-flakes and core from layer 4.* *See p. 5*

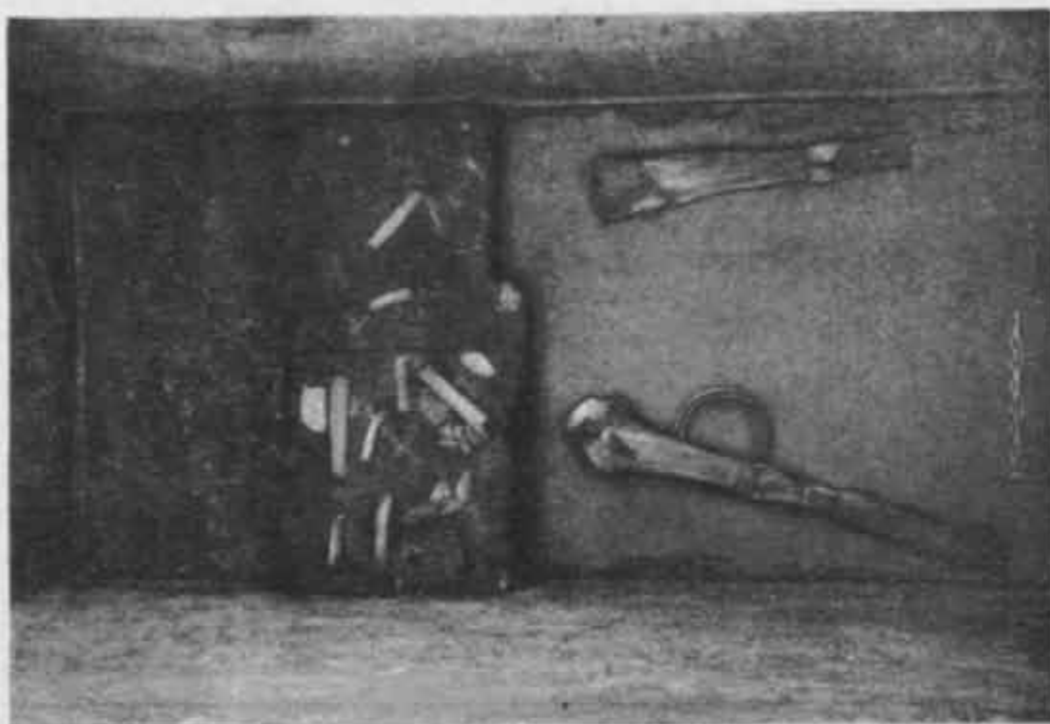


A



B

Nagarjunakonda : A, *floor of house at the neolithic site*; B, *Megalith IX with multiple capstones.* (*Scales of foot-and-inches.*) *See p. 6*



B



A

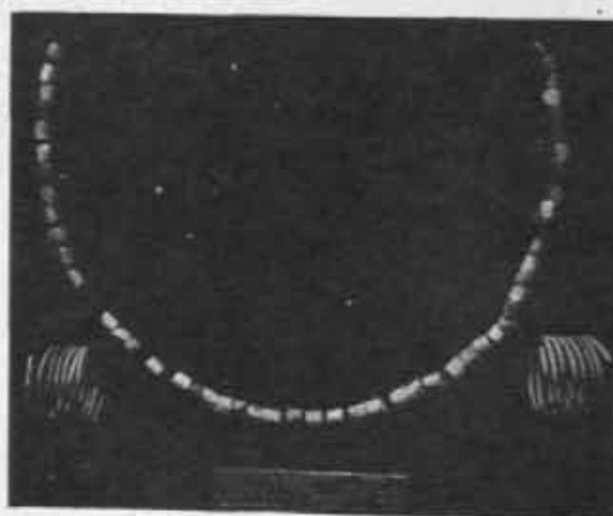
Nagarjunakonda : A, *cist (scale of foot-and-inches)*, *and* B, *contents of cist, Megalith VII.* *See p. 6*



A



B

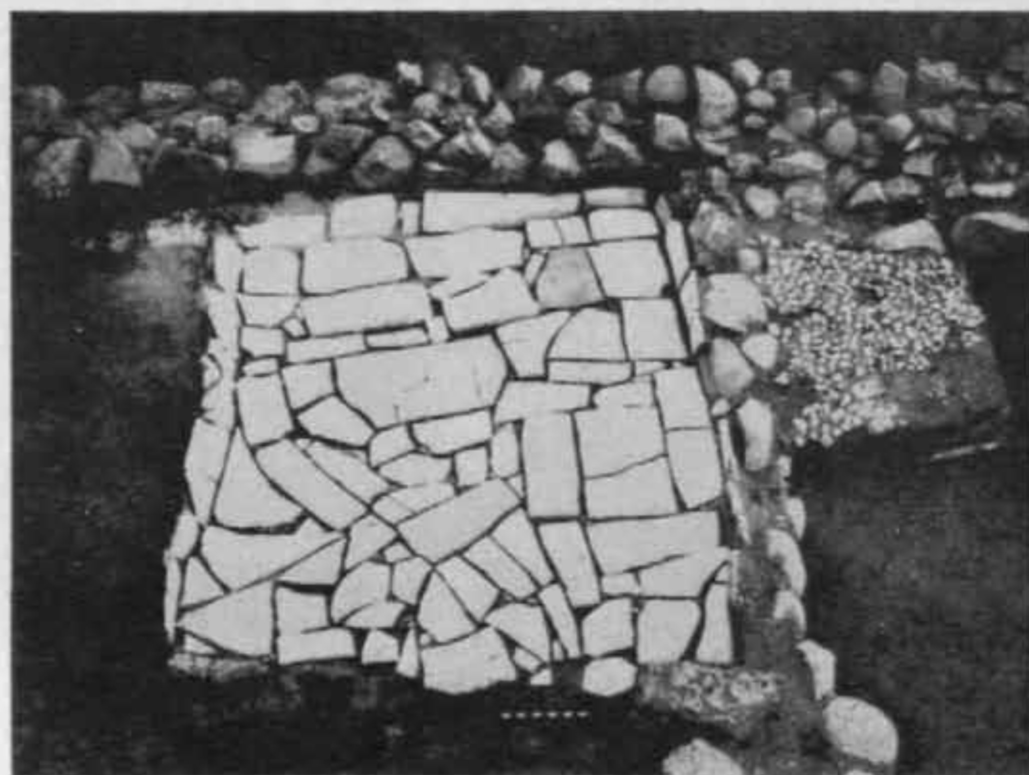


C

Nagarjunakonda : A *and* B, *skeleton and grave-furniture (scale of feet), and* C, *beads and spirals, Megalith VII.* *See p. 9*

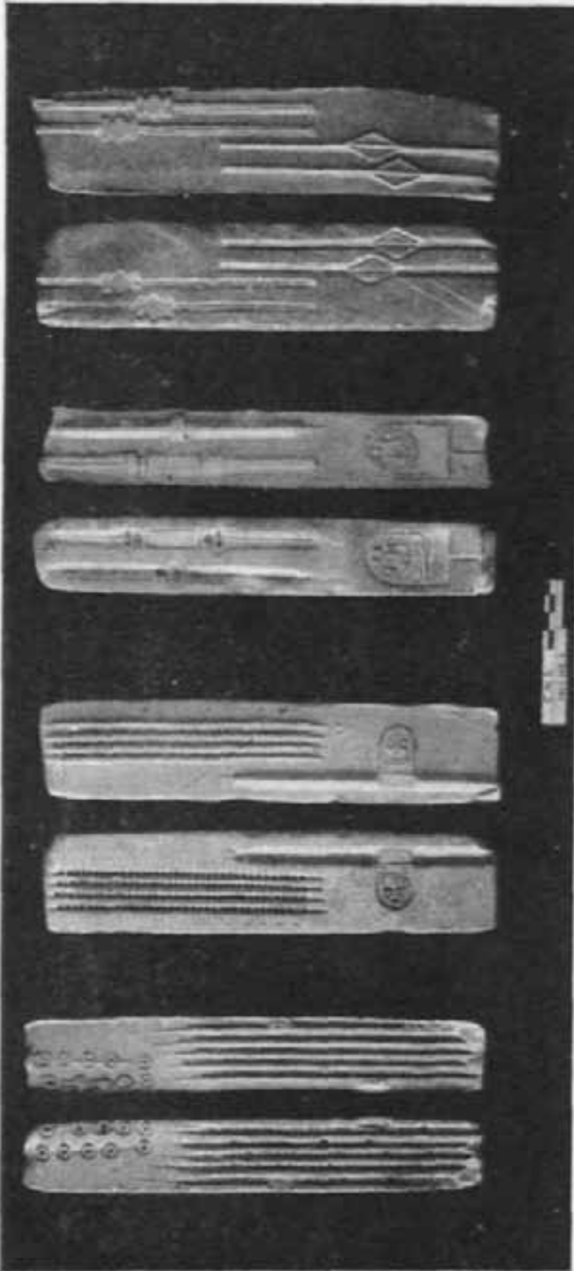


A

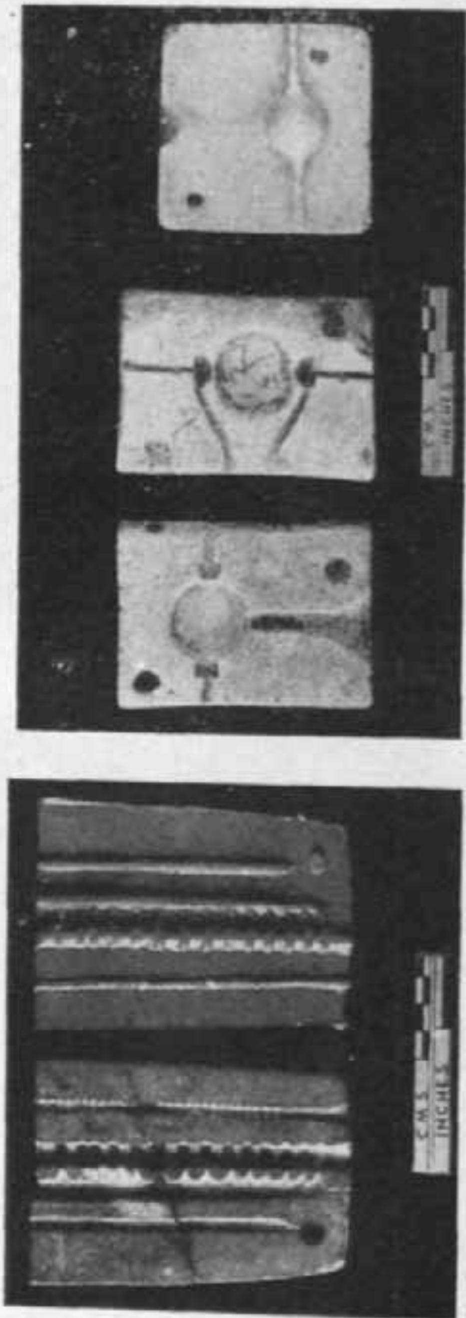


B

Nagarjunakonda : A, *row of jars, and* B, *goldsmith's workshop, in habitation-site.*
(Scales of foot-and-inches.) *See p. 9*



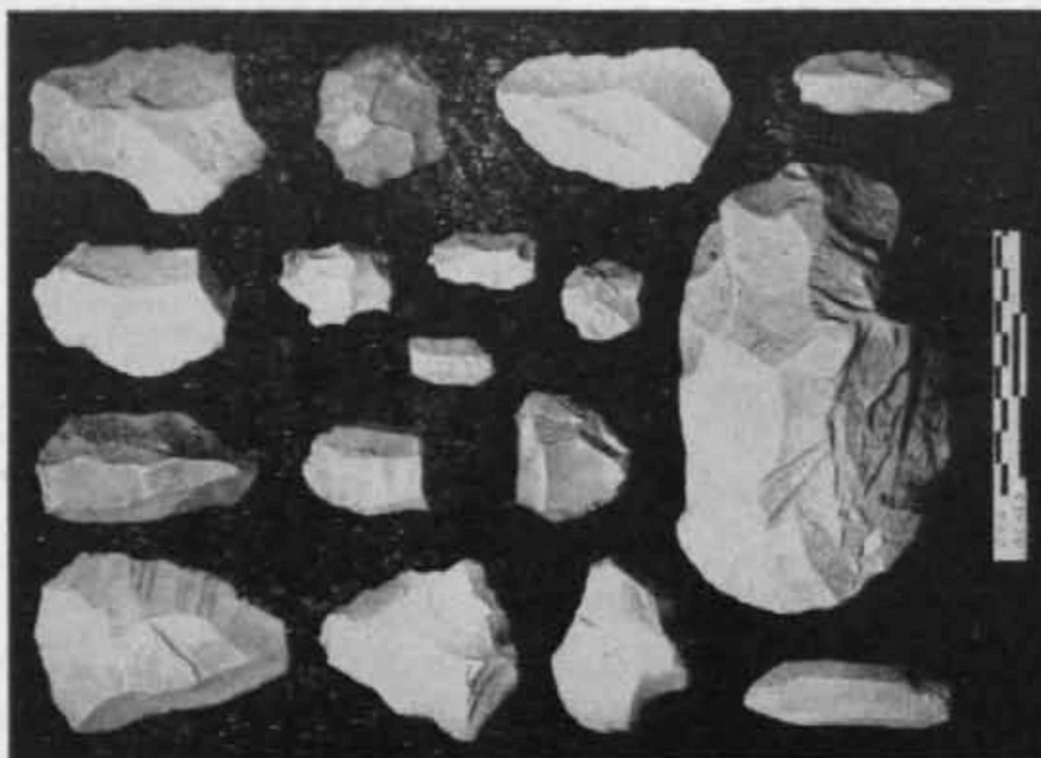
A



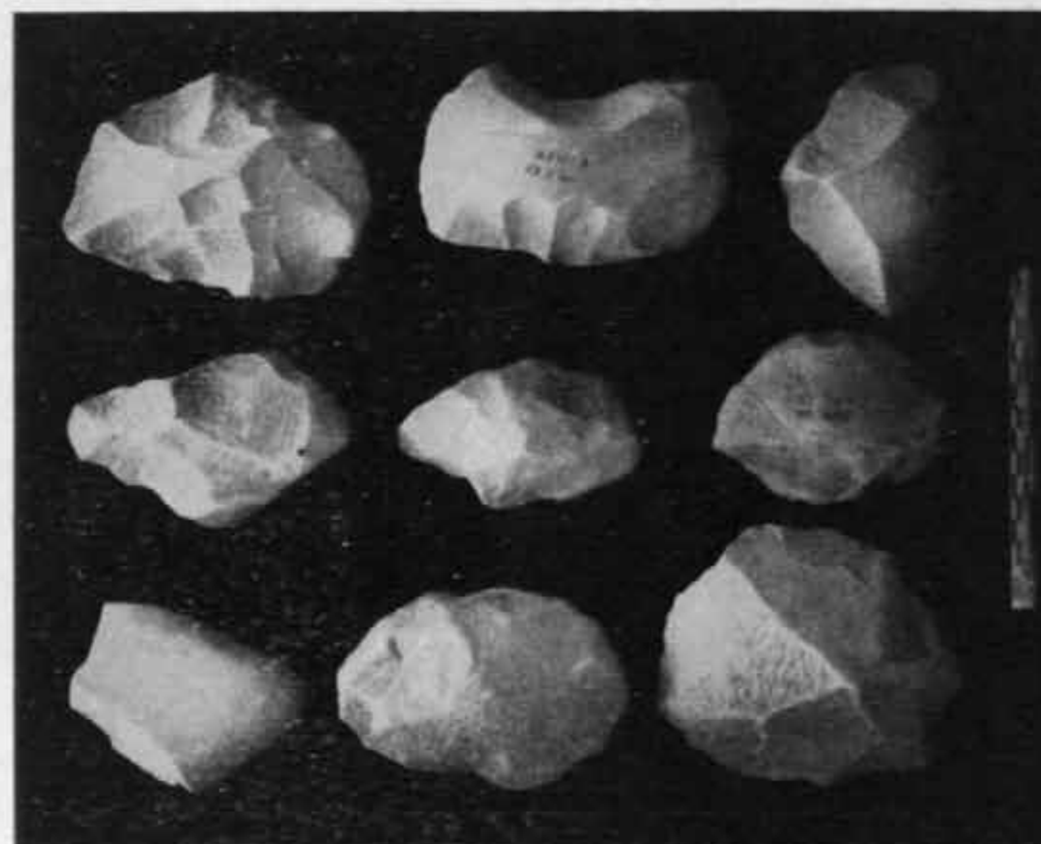
C

B

Nagarjunakonda : terracotta moulds from goldsmith's workshop. *See p. 9*

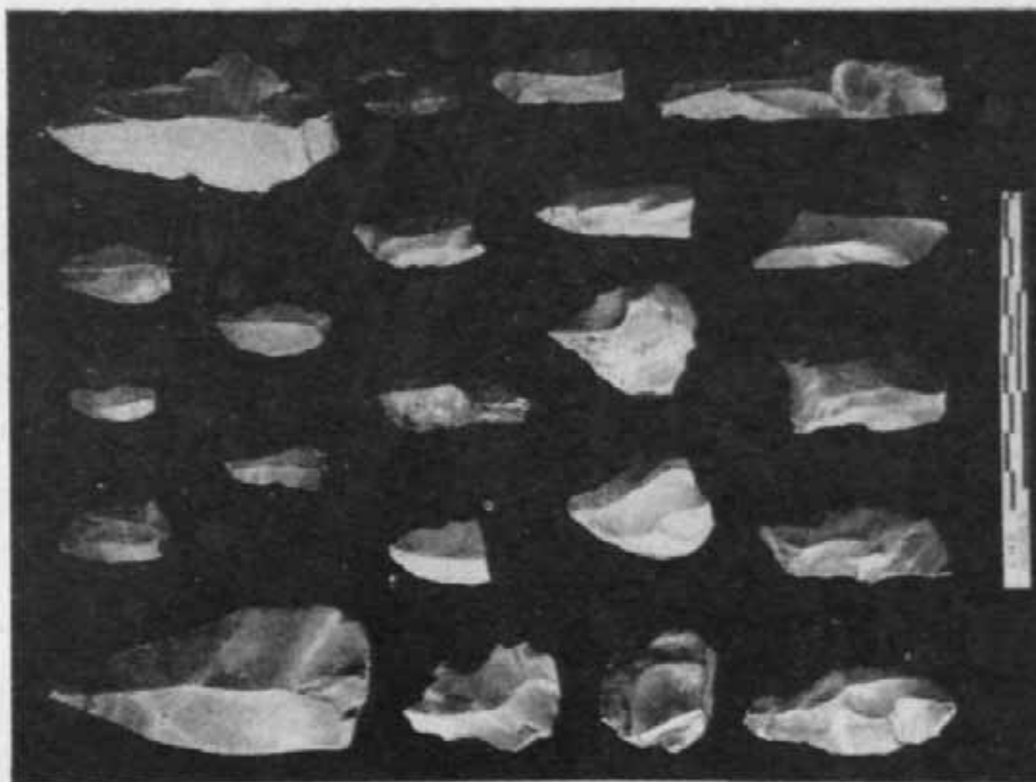


B

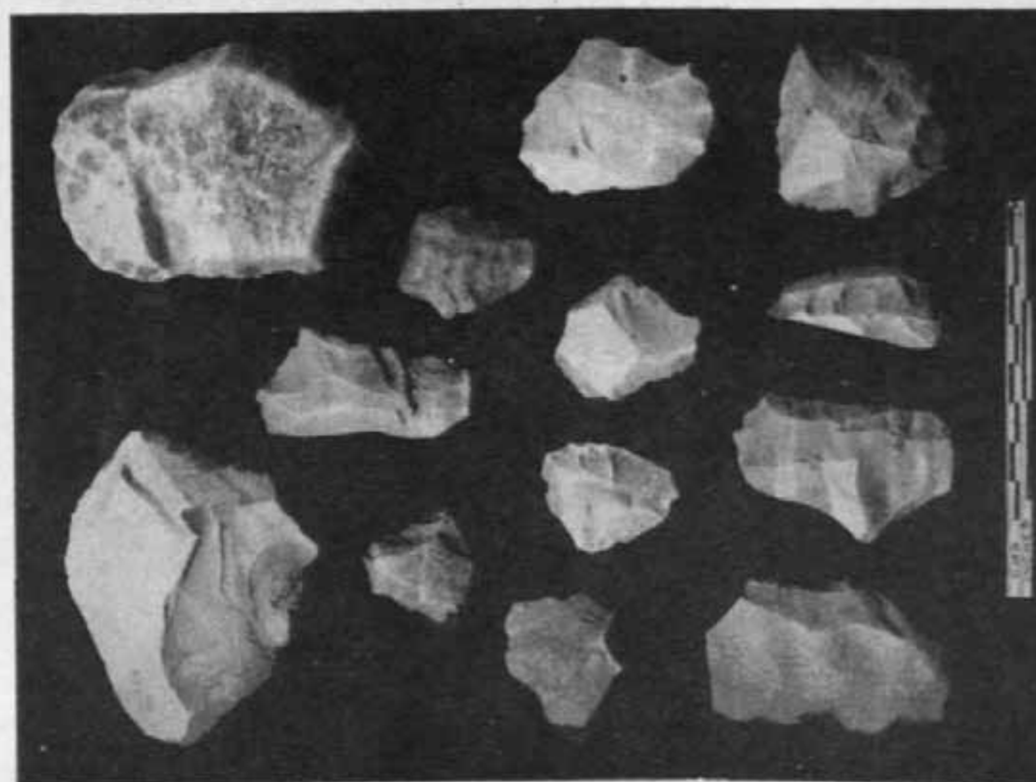


A

A, *Yelleswaram : palaeoliths.* B, *Pratappur : Upper Palaeolithic and microlithic tools.* *See pp. 12 and 14*



B



A

A, Marvania : Upper Palaeolithic and microlithic tools. B, *Sanjai valley : microlithic tools.* *See p. 14*

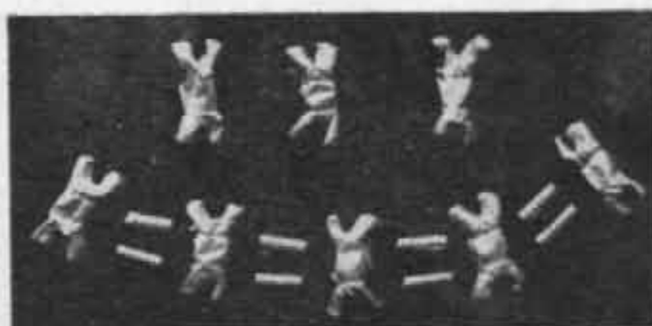


B

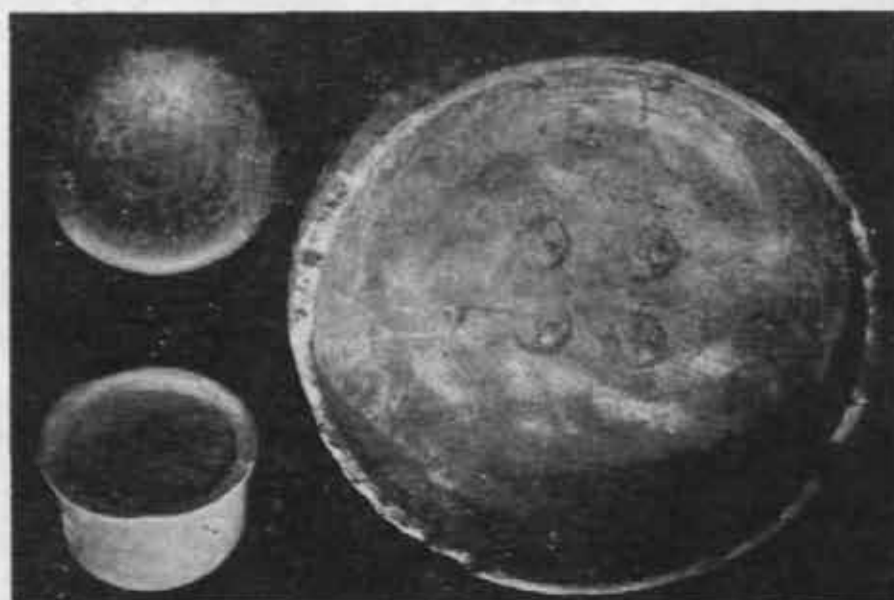


A

A. *Sonpur : post-cremation burial (scale of foot-and-inches).* B, *Vaisali : terracotta sealings from Raja-Visal-ka-garh.*
See pp. 14 and 16



A



B



C

A, *Vaisali : gold necklace from Raja-Visal-ka-garh* ($\frac{4}{7}$); B *and* C, *Vaisali : copper utensils, one of them with relics, from stupas* ($\frac{3}{10}$ *and* $\frac{1}{3}$). *See p. 16*



A



B

Lothal: streets and houses. *See p. 17*

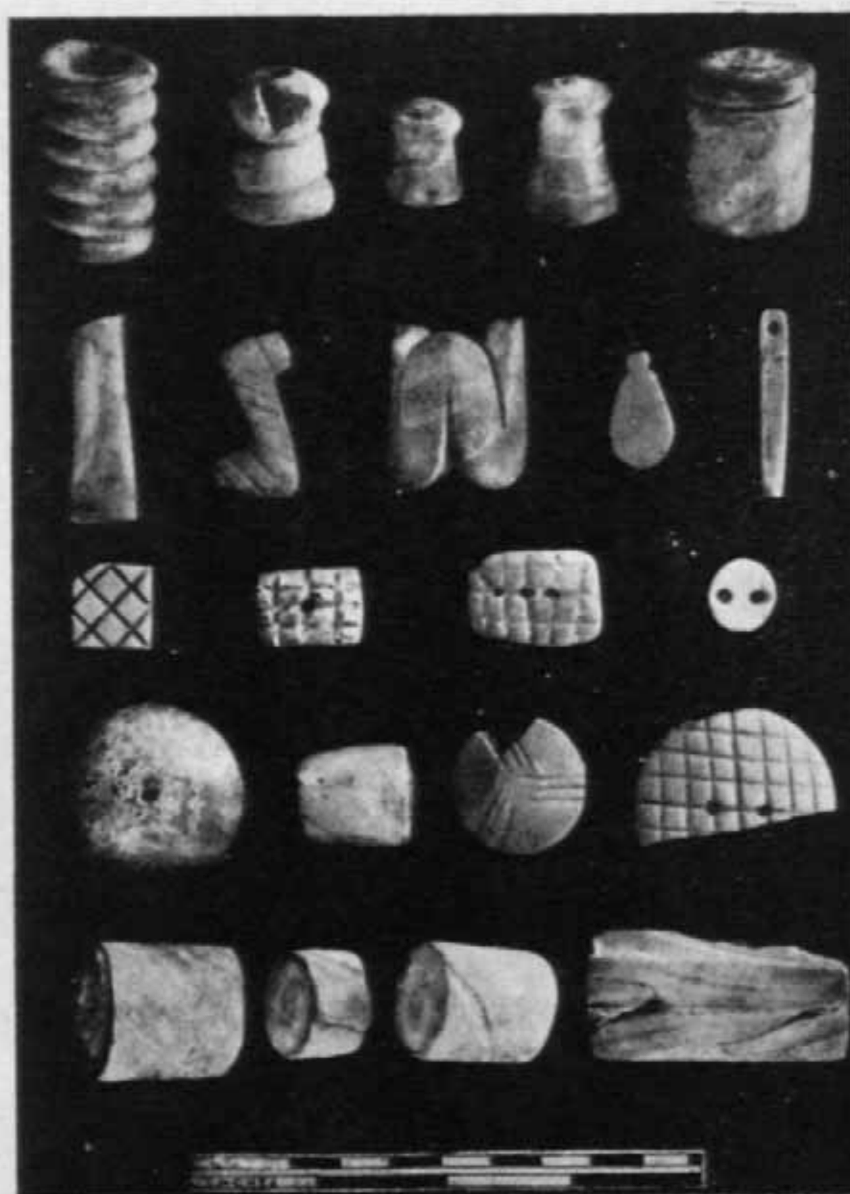


A



B

Lothal : A, *houses and drains:* B, *an oblong enclosure (scale of foot-and-inches).* *See p. 17*

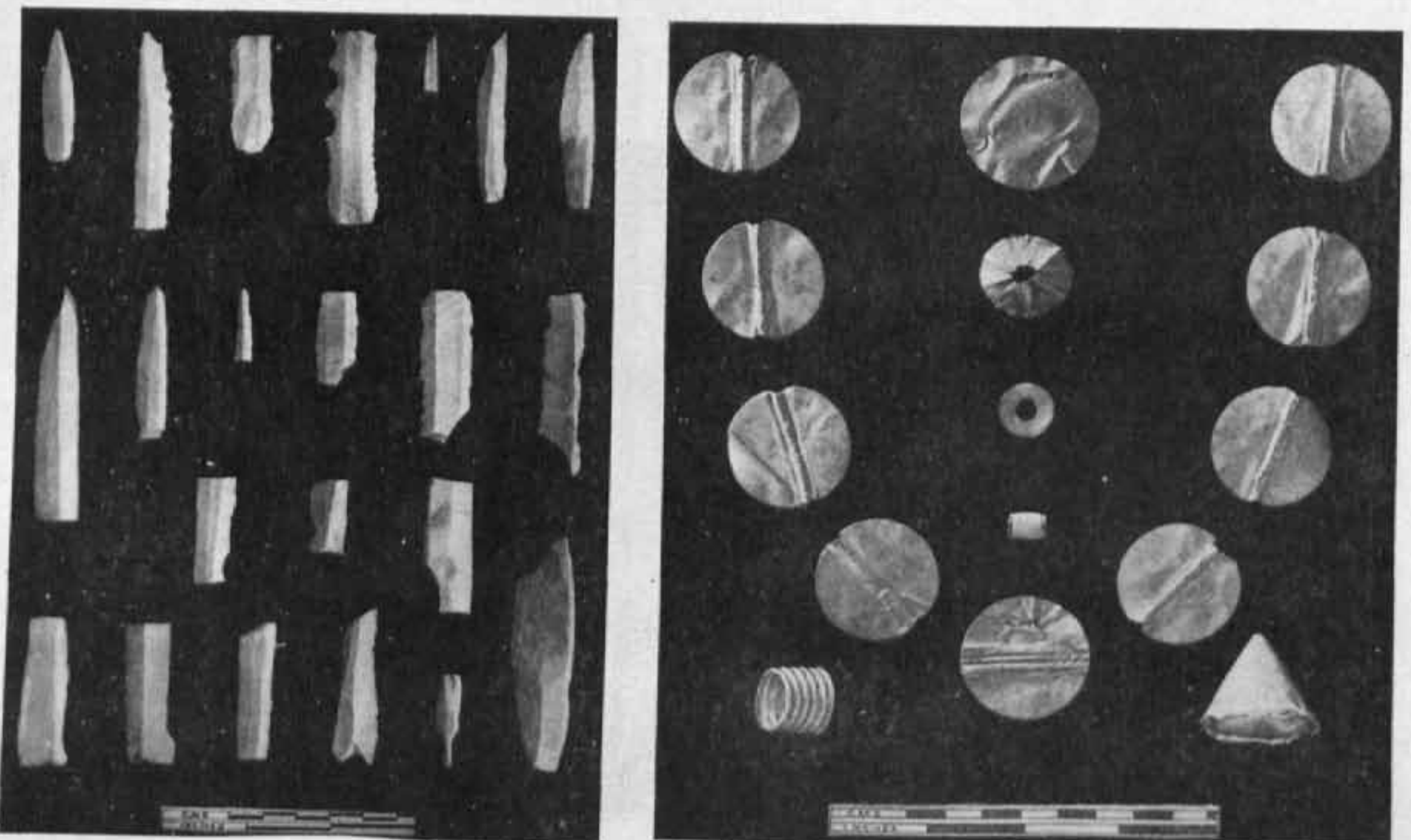


A



B

Lothal : A, *shell objects;* B, *ivory scale* (¼). *See p. 17*

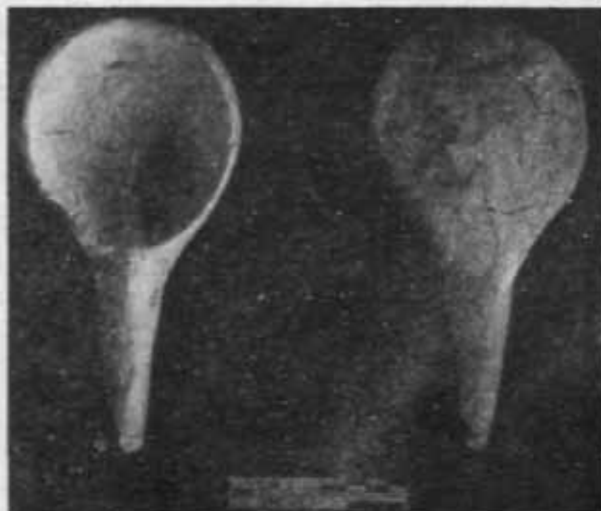


A B

Lothal; A. chert blcdes, points and engravers; B. gold pendants, ring, beads and ear-ornaments. *See pp. 17 and 18*



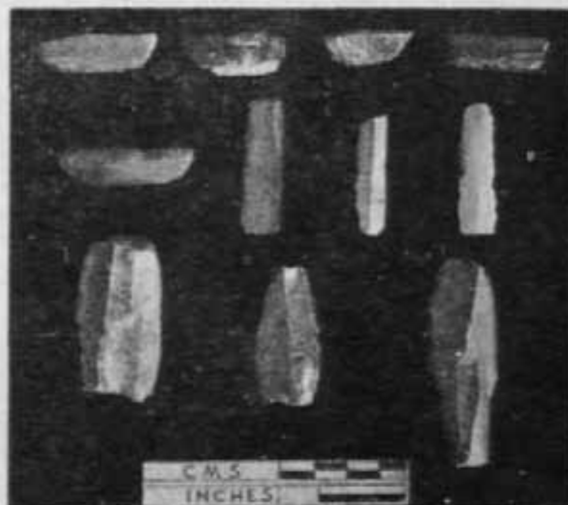
A



C



B



D

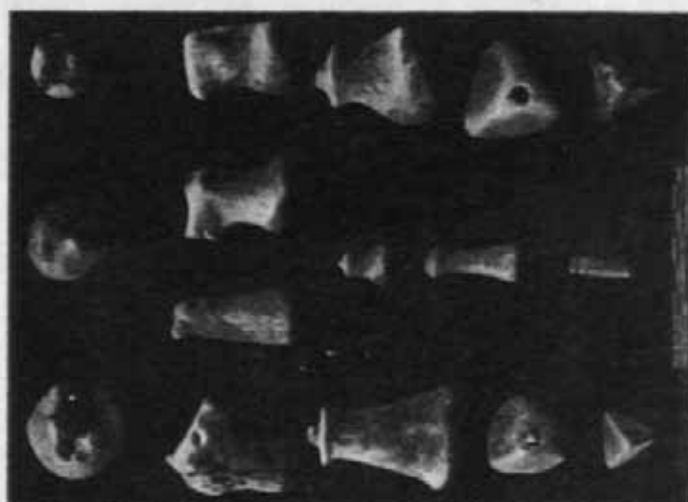


E

Lothal : A, *terracotta boat;* B, *alabaster wheel;* C, *pottery ladle;* D, *jasper and agate blades;* E, *terracotta horse* ($\frac{1}{1}$). *See pp. 17 and 18*









A B C D

Lothal : A. *terracotta gamesmen;* B, *steatite seals;* C, *and* D. *terracotta sealings* (¾). *See p.* 18



A



B



C

Lothal : extended burials. A *and* B. *Phase A. and* C. *Phase B.* *See p. 18*



A



B

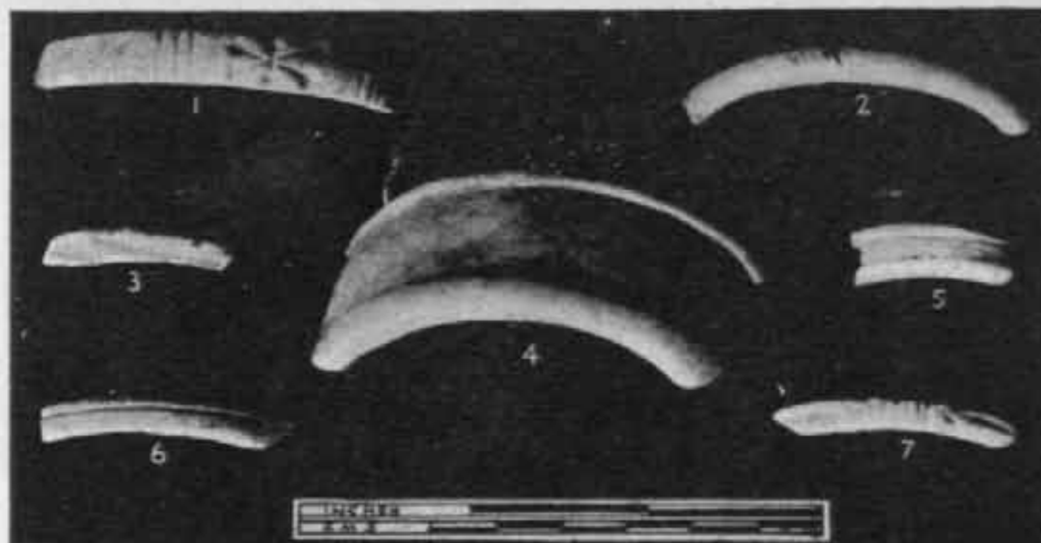
Broach : A. cutting across the eastern defences, rampart-walls of Period II (collapsed) and Period III; B. cutting across the southern defences. *See p. 19*



A



B

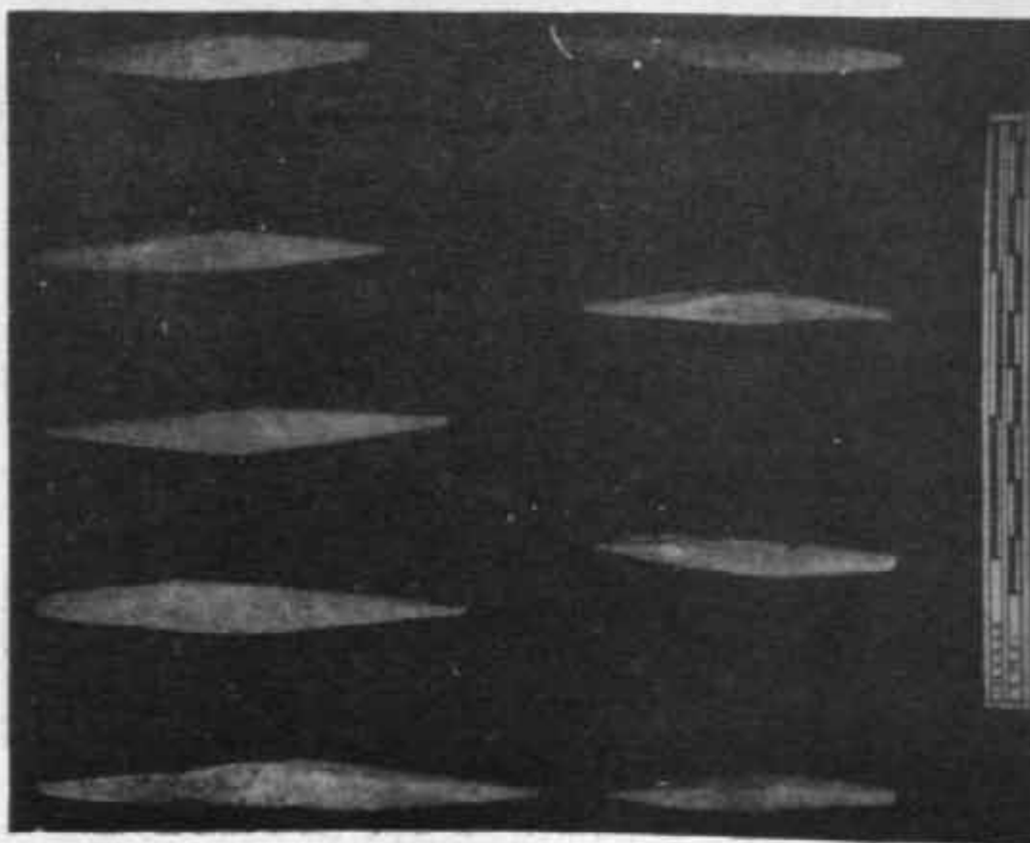


C

Broach : A, *black-and-red ware;* B, *Northern Black Polished Ware, stamped sherd and moulded pot-handle ;* C, *shell bangles.* *See p. 19*



B



A

Broach : A, *bone arrow-heads, Period I;* B, *jasper chaturmukha-linga.* *See p. 19*



A



B

Devnimori : A, stupa; B, pilaster-capital. (Scales of feet and inches.) *See p. 20*



A



B

Devnimori : A, *chaitya-arch;* B, *round medallion.* *See p. 20*



A



B

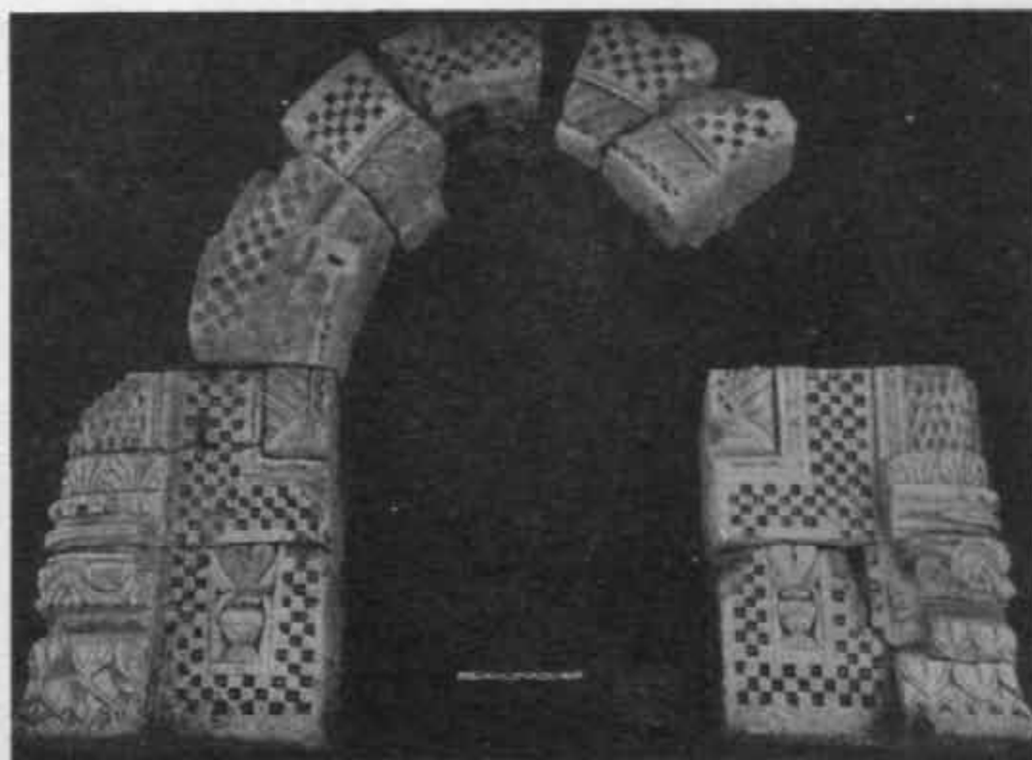


C



D

Devnimori: terracotta Buddha-images. *See p. 21*



A

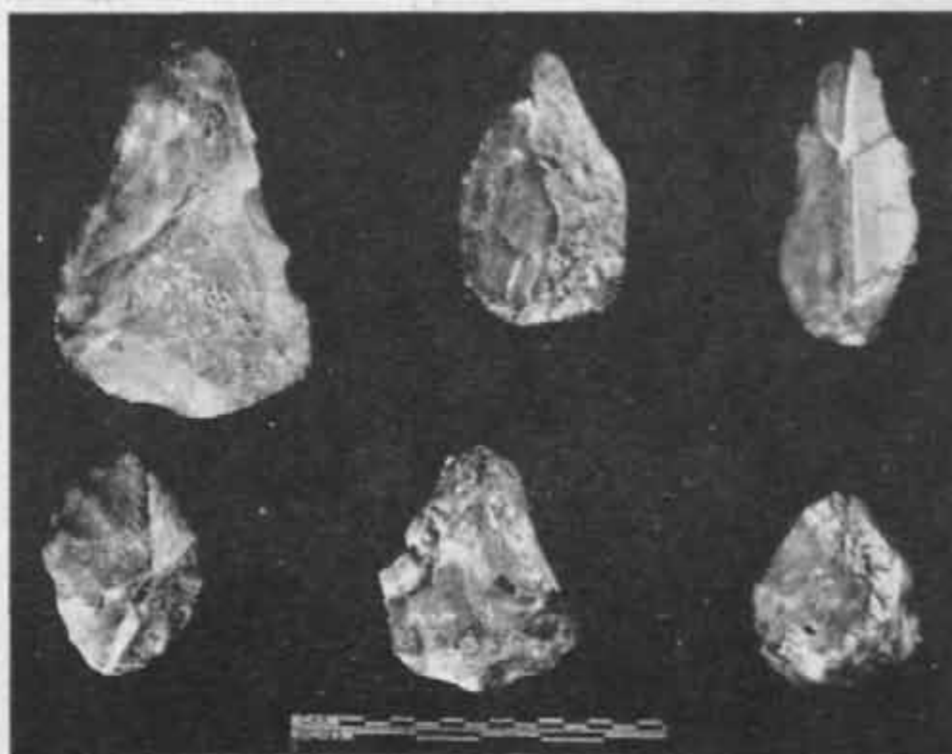


B

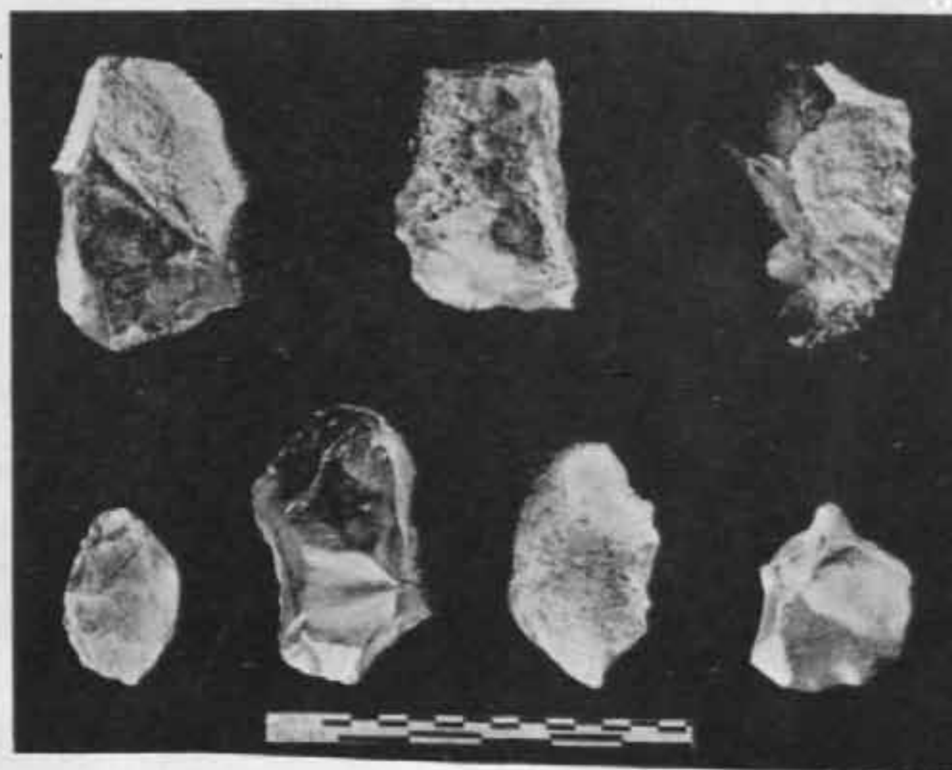
Devnimori : A, *arch with purna-kumbha motif* ; B, *seal with cast*. *See pp. 20 and 21*



Bandol: tool-bearing gravel (scale of foot-and inches). *See p. 25*



A



B

Bandol : stone tools. *See p. 25*



A

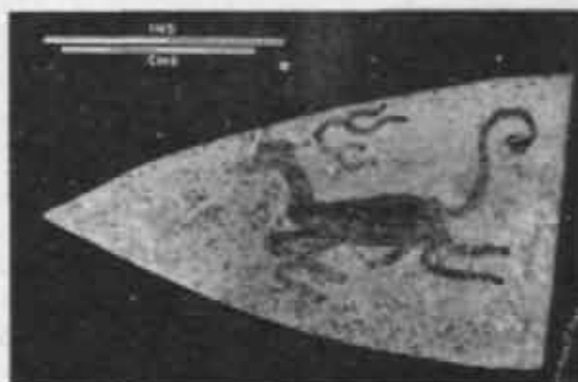


B

Nevasa : A, *remains, and* B, *oven. Period VI.* *See p. 26*



A



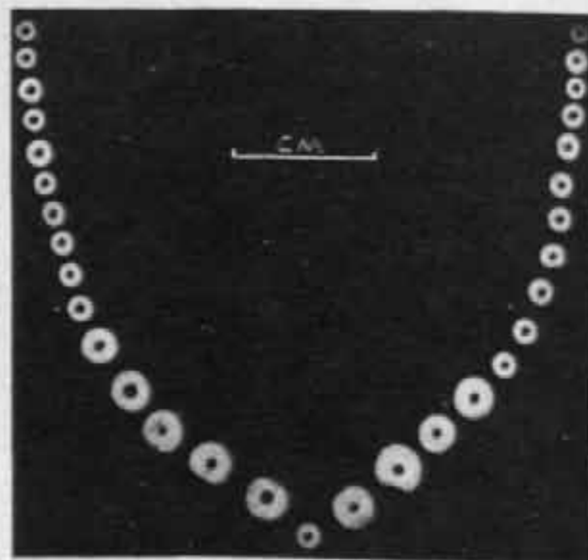
B



C



D



E

Nevasa : A, B, C *and* D, *pottery with painted animal-motifs, and* E, *shell beads. Period III.*
See pp. 27 and 28



A

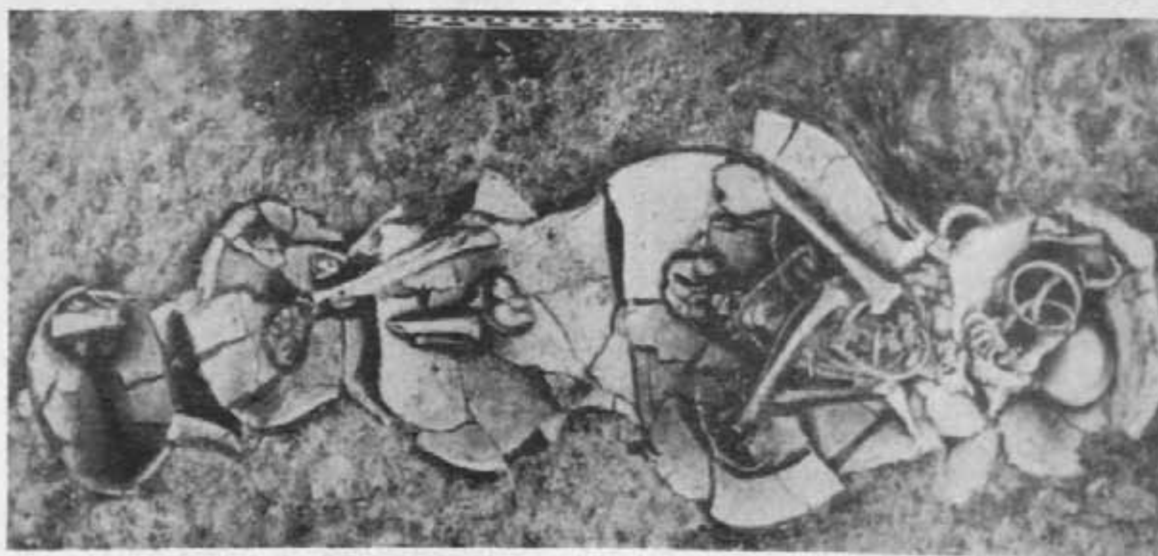


B

Nevasa : **A**. *view of burials. and* **B**. *an urn-burial. Period III.* *See p. 28*

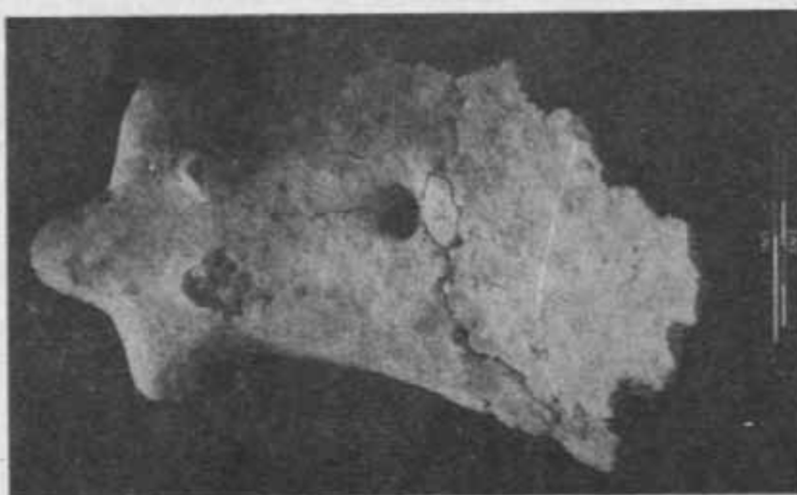


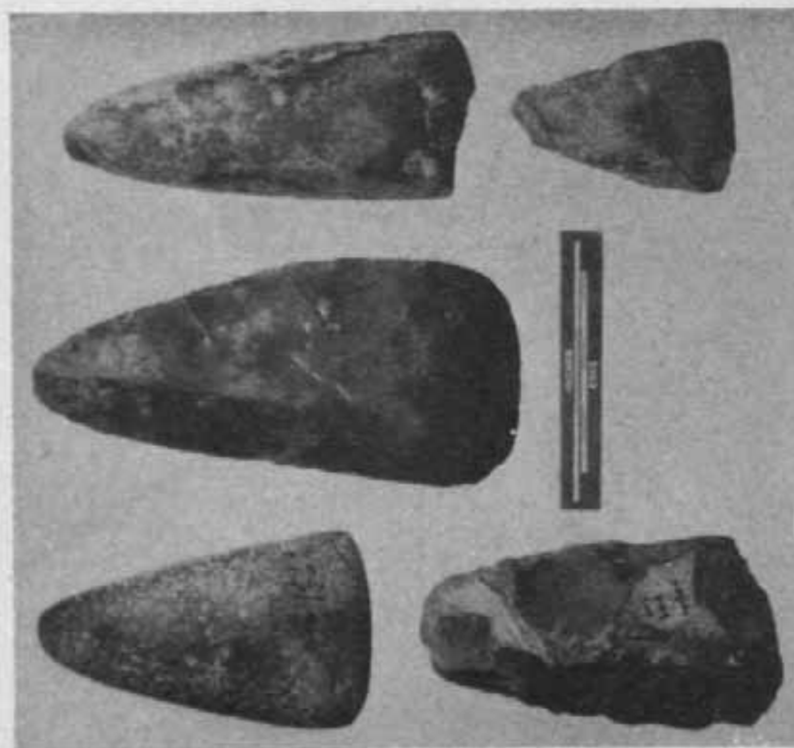
A



B

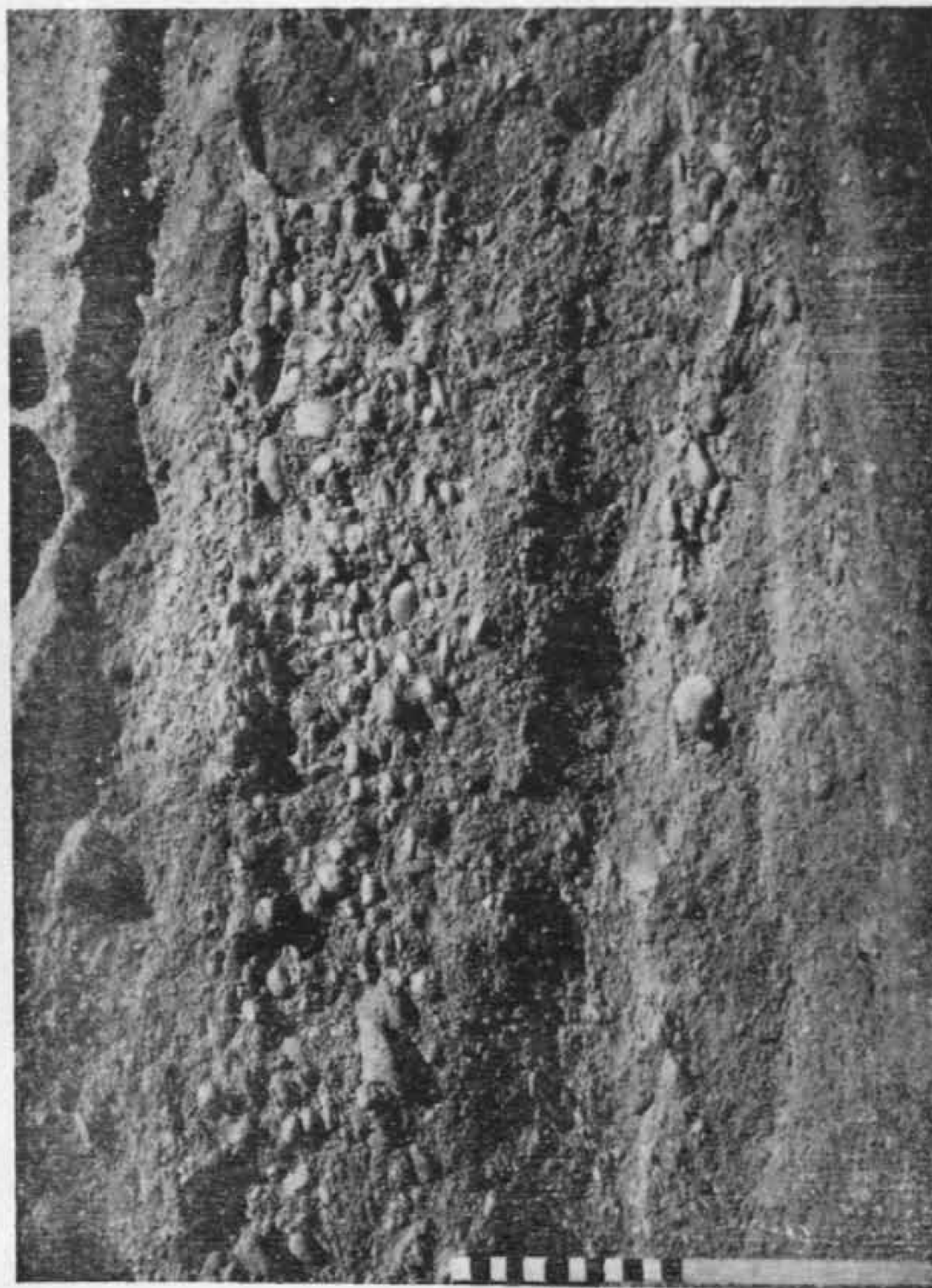
Nevasa : A, skeletal remains of an adult, and B, burial-urns of a female adult. Period III. See p. 28



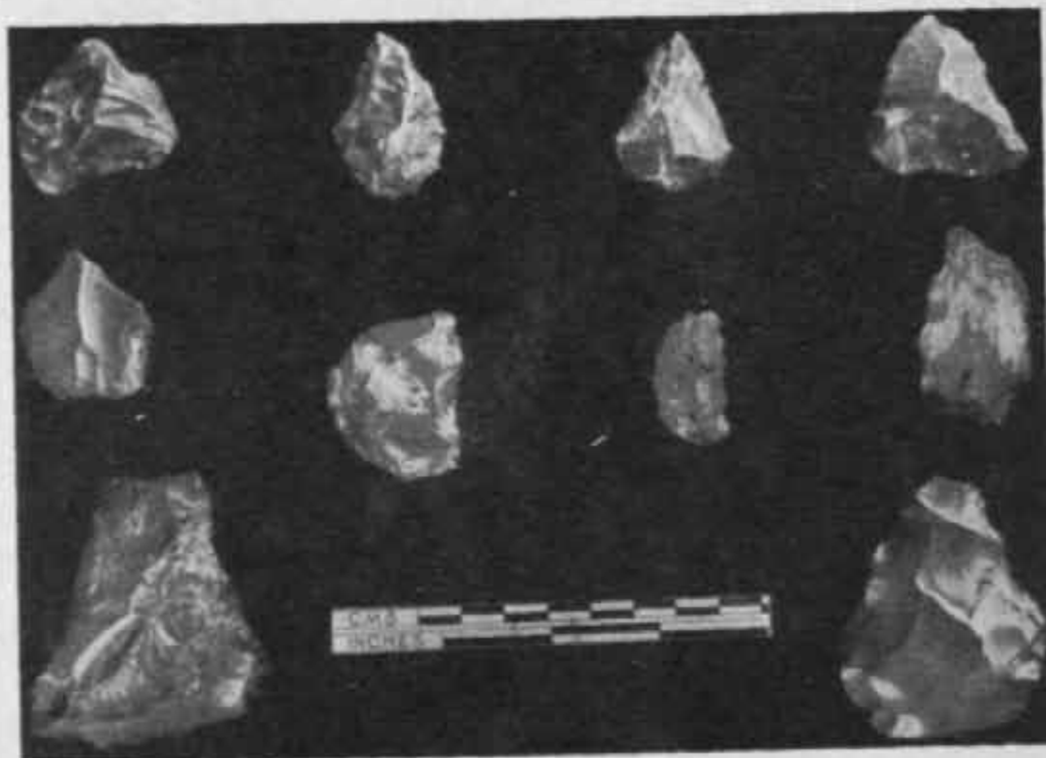


A B

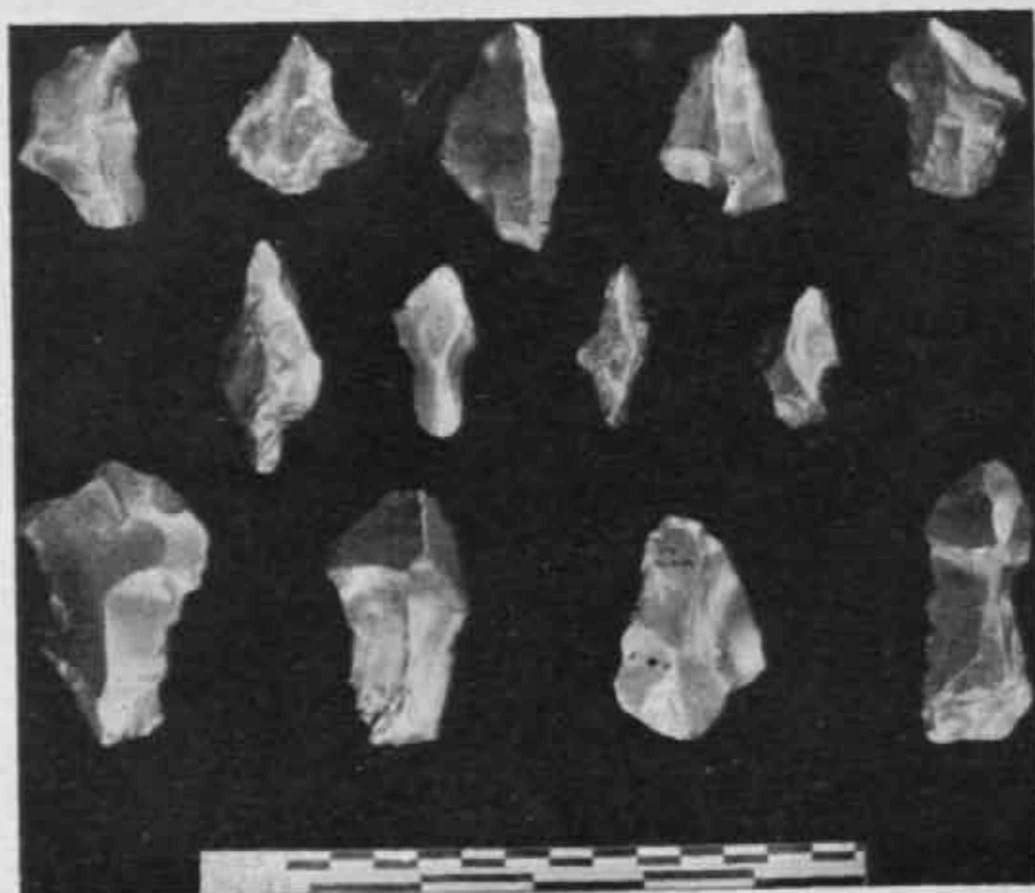
Nevasa : A, *polished celts*, *and* B, *terracotta mother-goddess. Period III.* *See p.* 28



Patala : implementiferous gravel. See p. 33



A

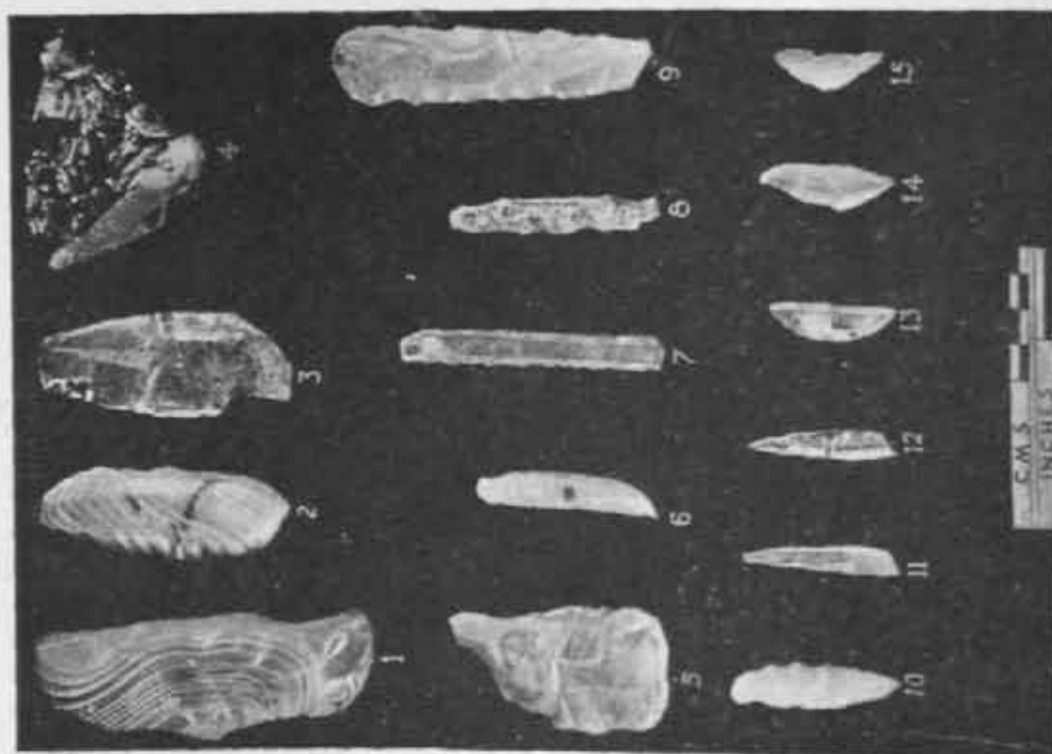


B

Patala: stone tools. *See p. 33*

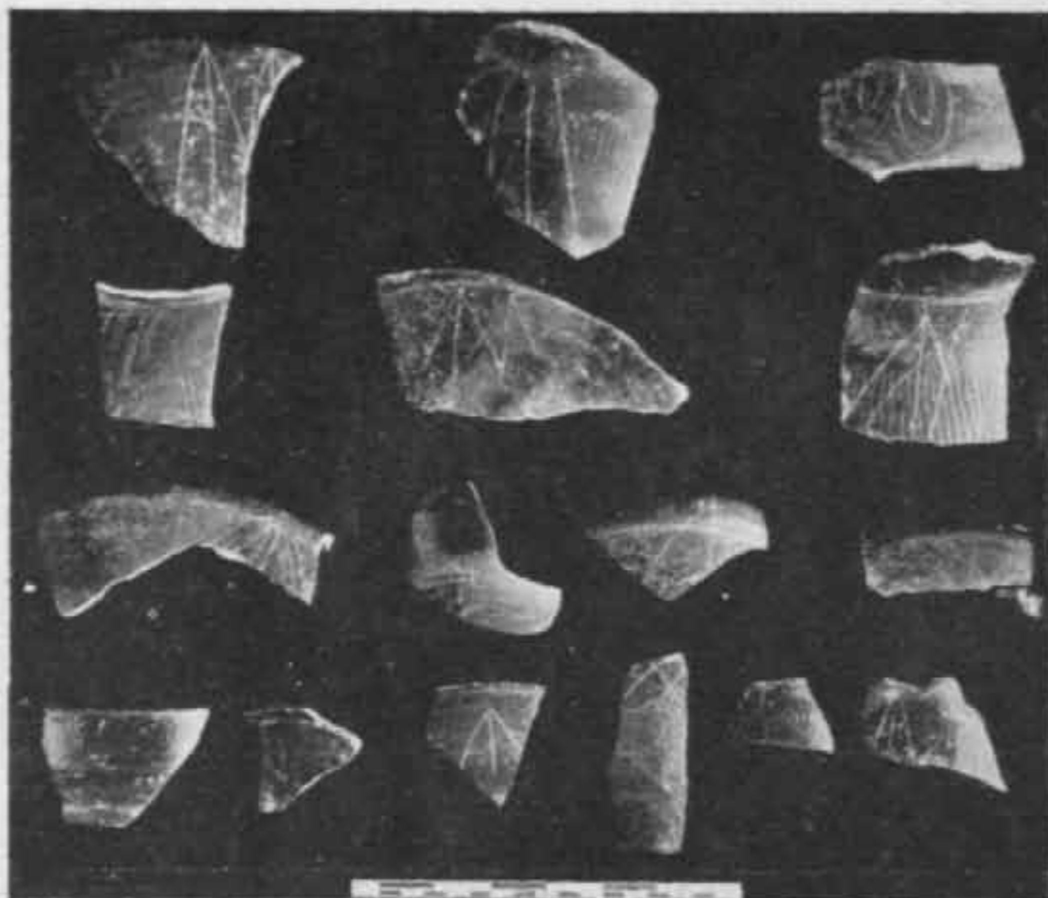


B

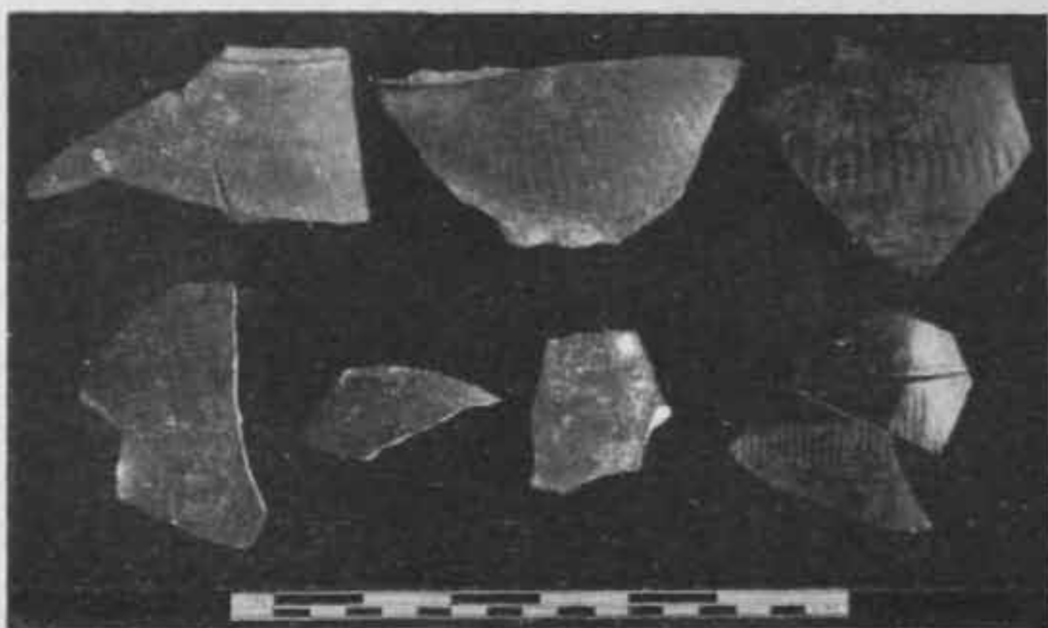


A

A. *Bahurupa : microliths;* B, *Sawalda : section of trench (scale of feet).* *See p. 36*

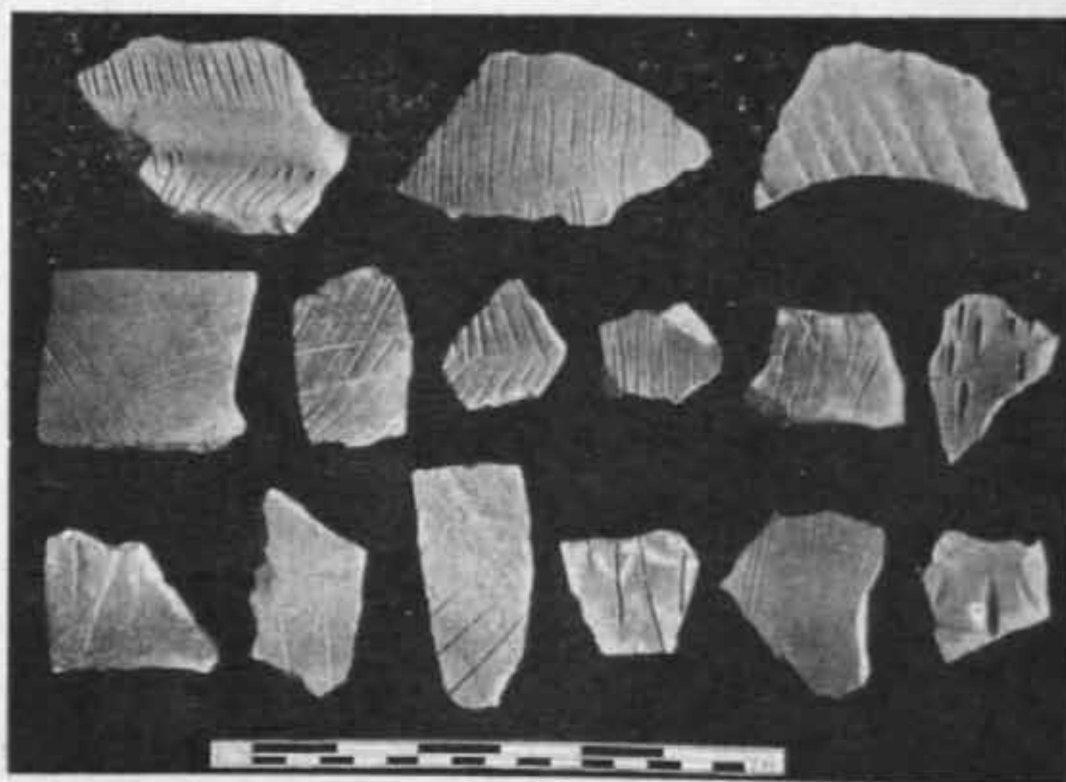


A



B

T. Narasipur : megalithic pottery. *See p. 38*



A



B

T. Narasipur ; A, burnished grey ware with incised designs; B, tools of Series II. See p. 36



Ratnagiri : Monastery 1, Cell 6, rear wall with foundation (scale of feet). *See p. 38*



A



B

Ratnagiri: Monastery 1, Cell 3, A. earlier walls, and B. earlier secret chamber (scales of feet). *See p. 38*



A



B

Ratnagiri : A, remains of earliest monastery; B, deul of a small temple. (Scales of foot-and-inches.) **See p. 38**



Ratnagiri : jagamohana of a small temple (scale of feet). See p. 38

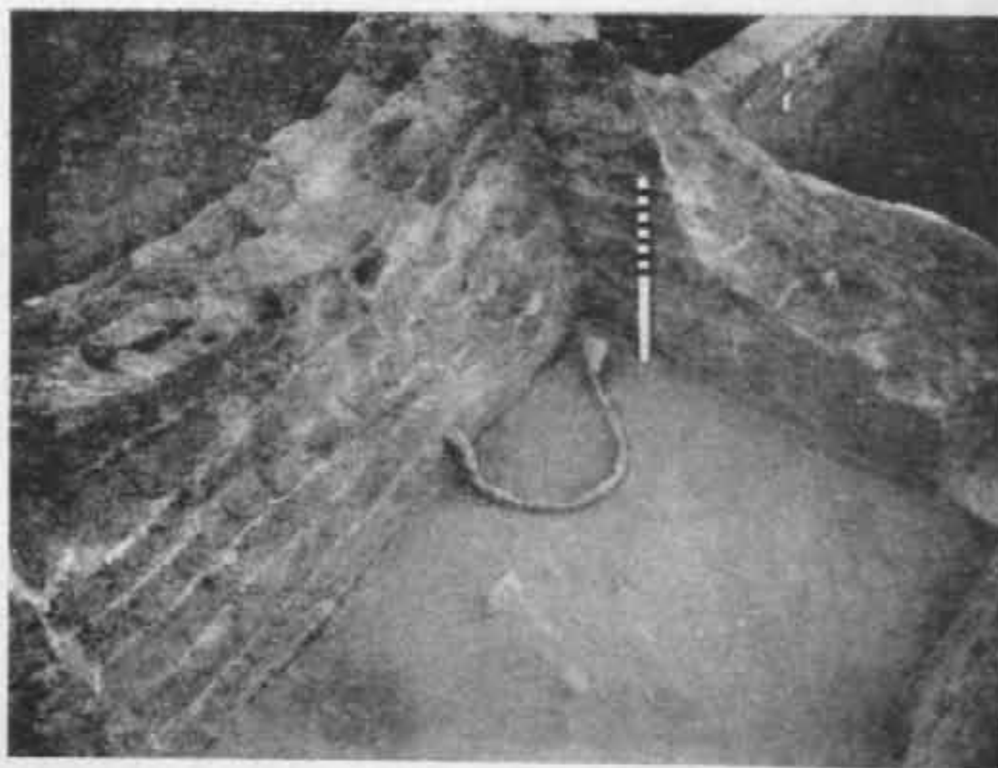


A



B

Gilund : A. *general view of GLD-1A;* B, *parallel mud-brick walls in GLD-2.* *See pp. 41 and 43*

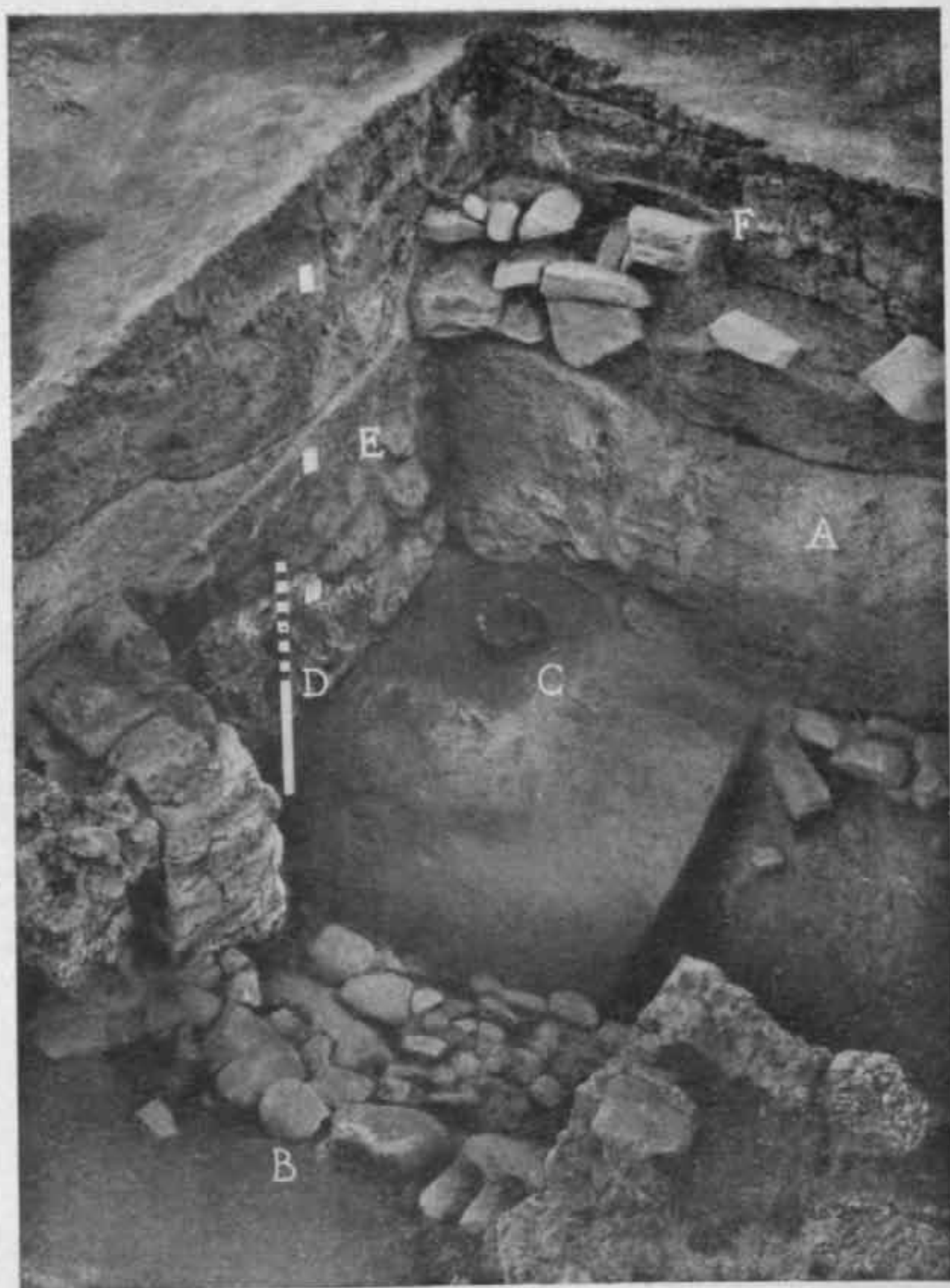


A

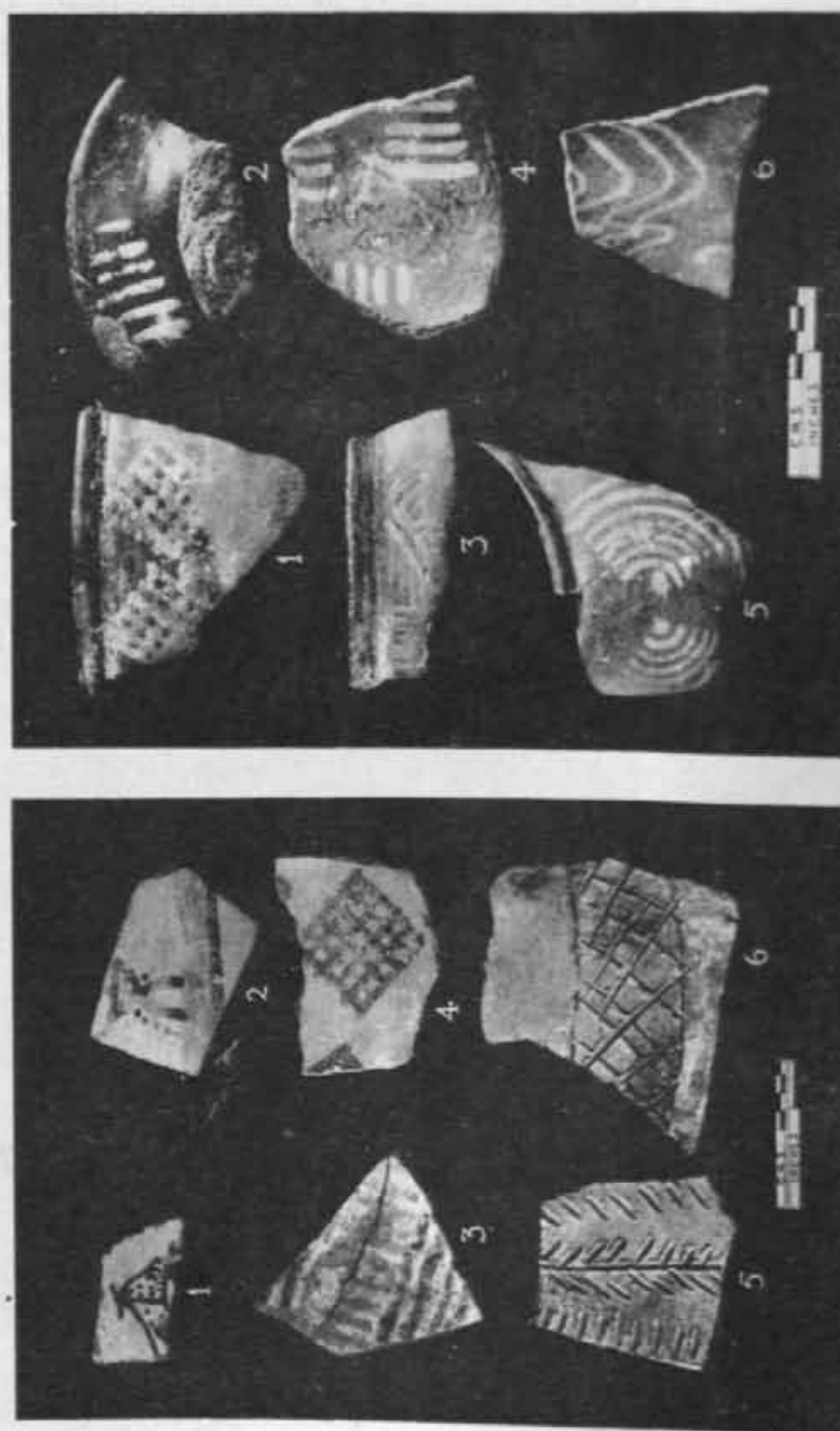


B

Gilund : A. part of mud-brick house, with clay-lined oven, and B. finger-mark decoration on plastered mud-brick wall, GLD-2. (Scales of foot-and-inches and inches.) *See p. 43*

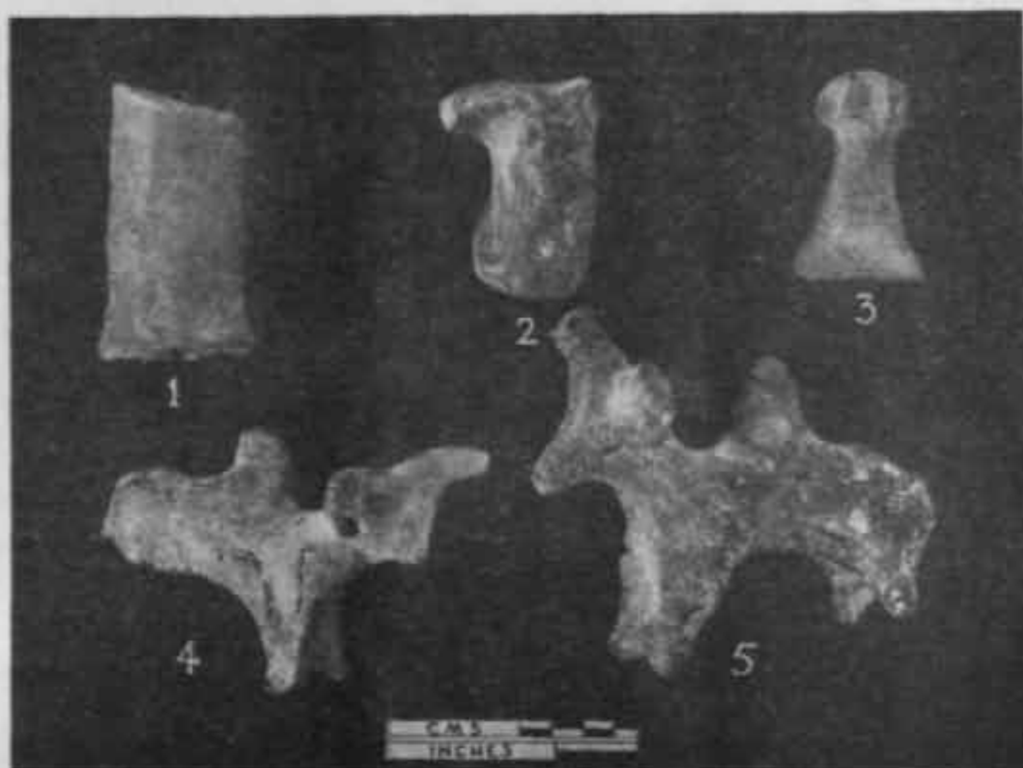


Gilund : section of GLD-3. showing A. plastered burnt-brick wall. B. entrance with stone-rubble pitching. C. charred wooden post. D. layer of white clay showing sintering. E. dèbris of Wall A. and F. mud-brick wall with rubble foundation. (Scale of inches.) *See p. 43*



A B

Gilund : pottery, chalcolithic levels. *See p. 41*



A

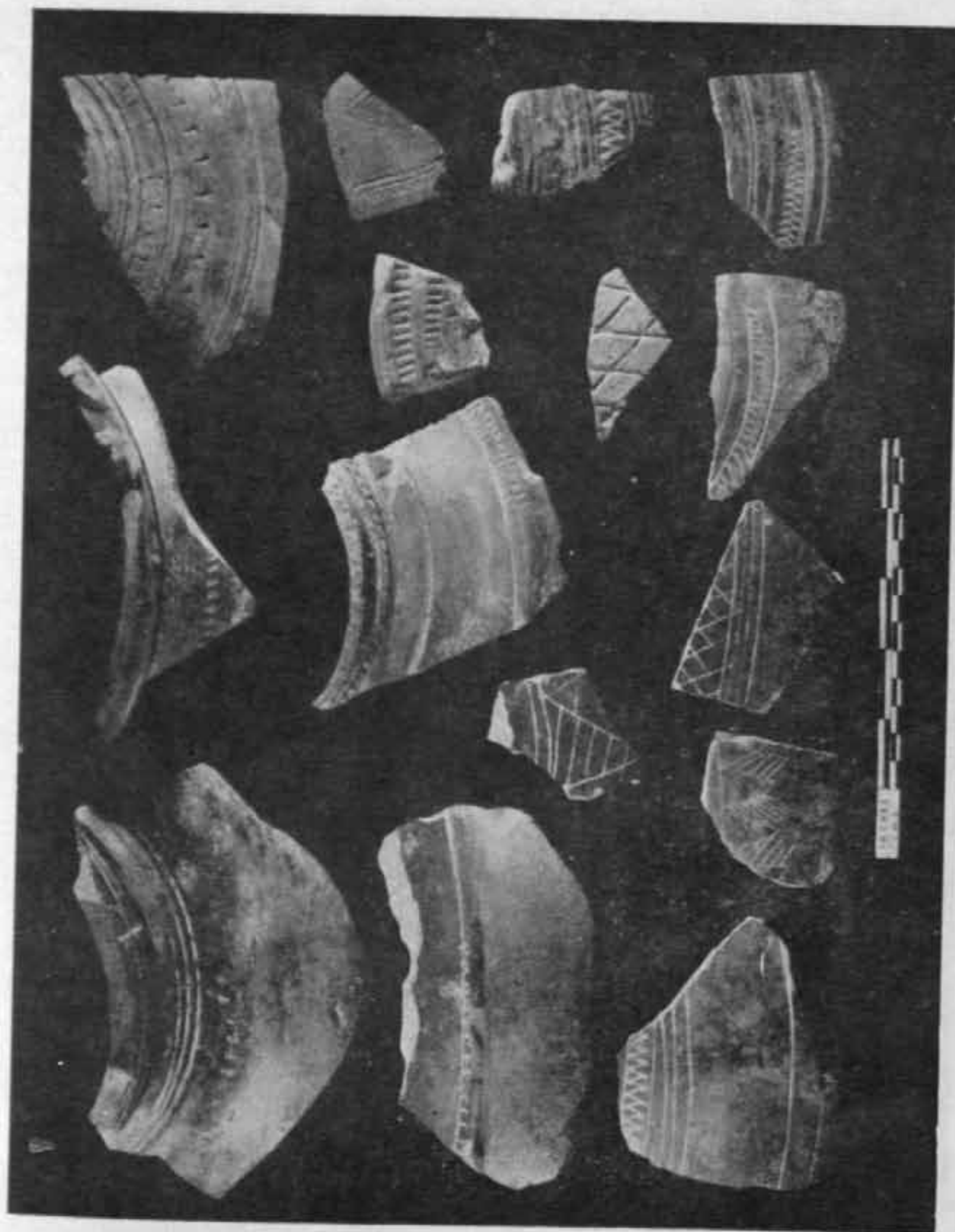


B

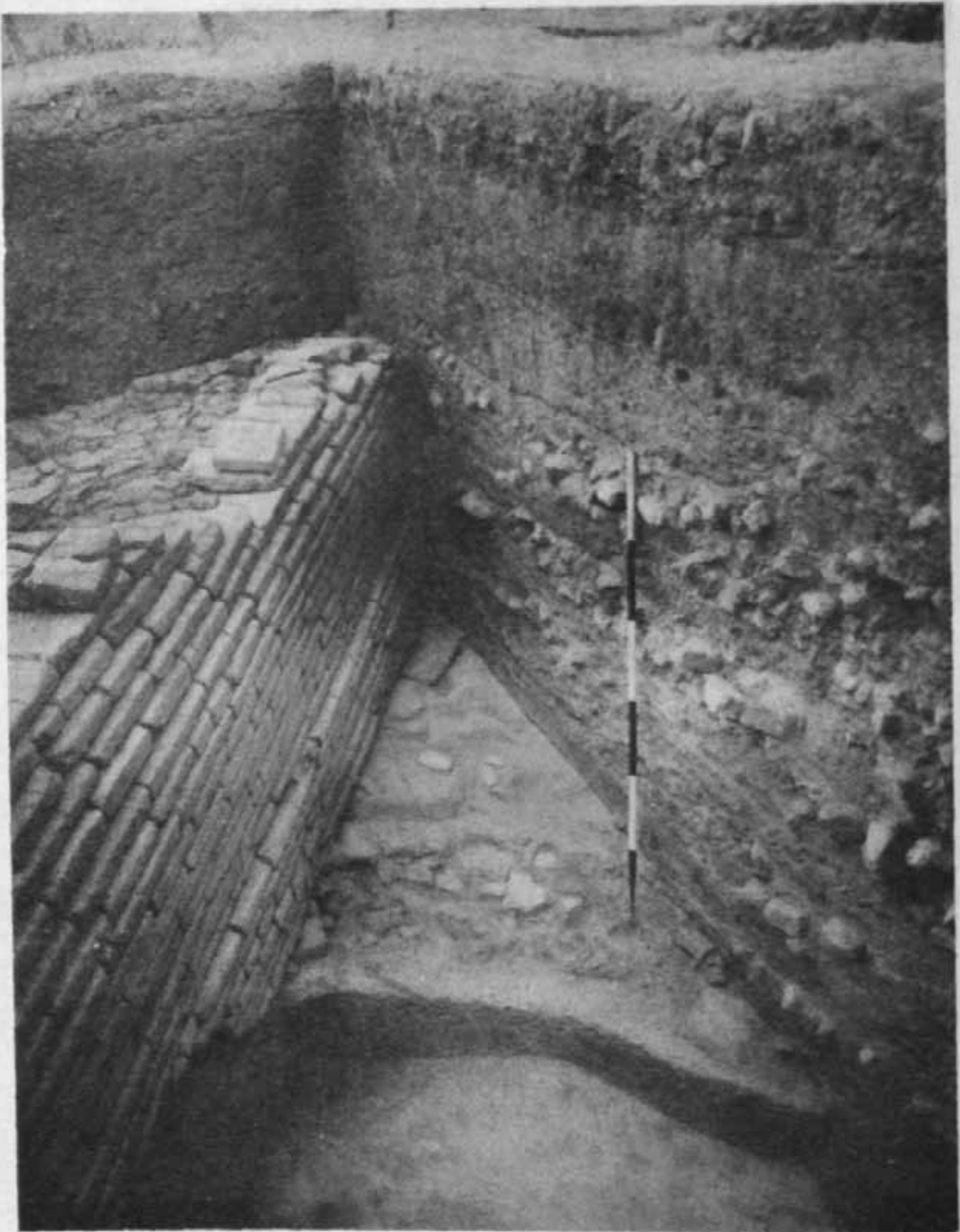
Gilund : A. terracotta gamesmen and animal figurines, and B, earthen ovens (scale of inches), chalcolithic levels. *See p. 43*



Gilund : terracotta moulds and casts, early medieval levles. *See p. 46*



Onaur and Unchadih : incised pottery. *See p. 46*



Kausambi : flank-wall with earlier floor (scale of feet). *See p. 46*

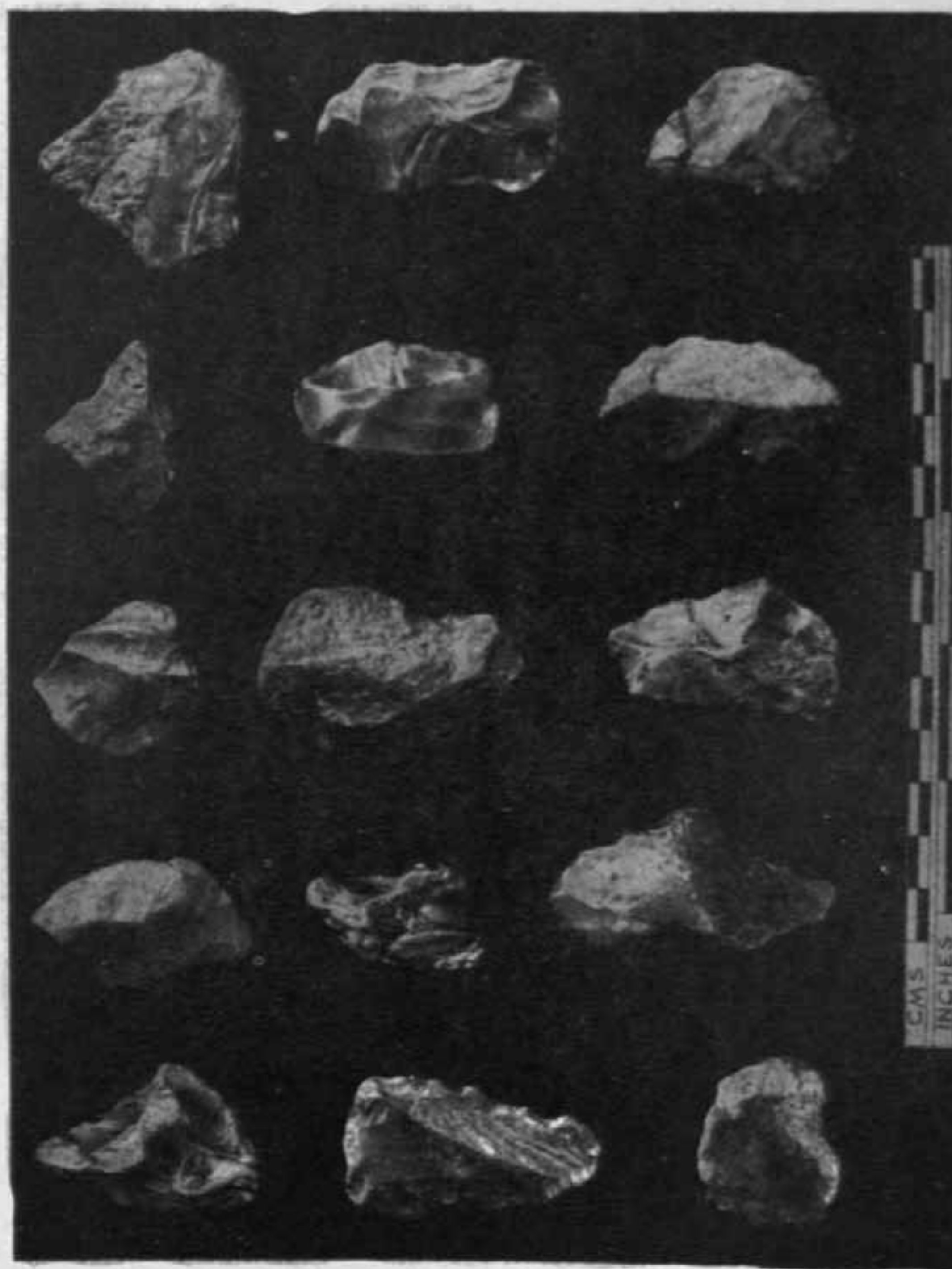


A

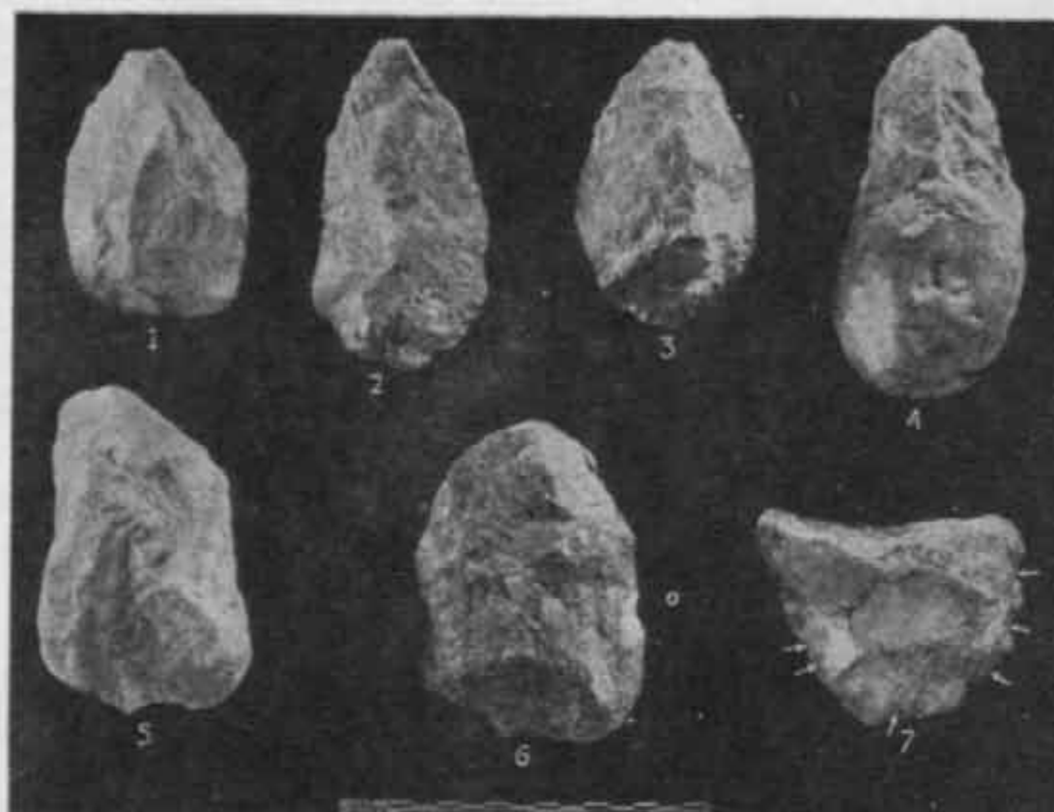


B

Kausambi: A. *flank-wall*, and B. *floors of different Periods (scales of feet)*. See *p.* 46



Betwa valley : tools of Series II. *See p. 46*

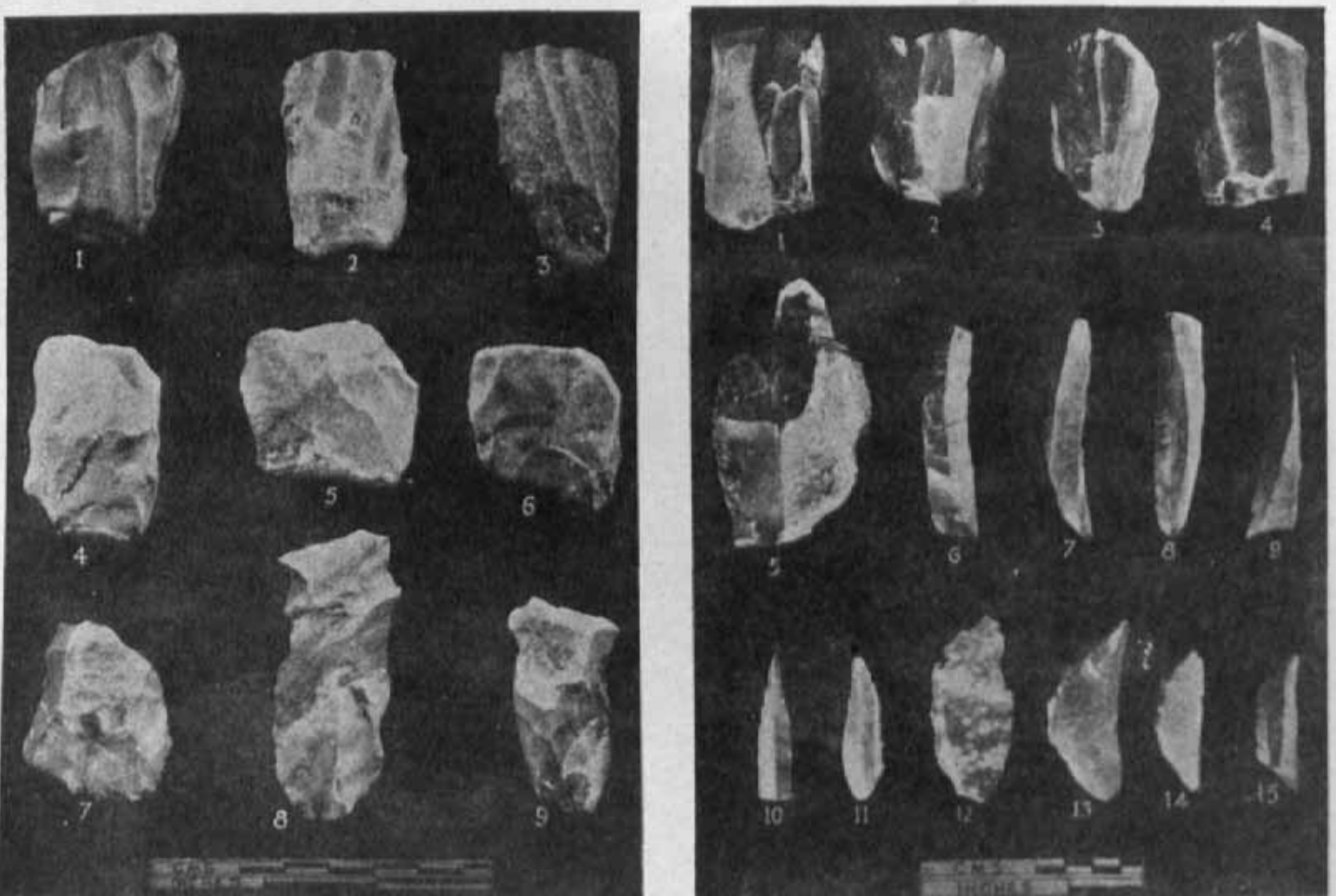


A



B

A, tools of Series I. Baddih: 1-4; Hatikheda: 5 and 6; Uparson: 7. B, neoliths. Kurkutia: 1-3. *See p. 50*



A, *tools of Series II*. Ambikanagar: 1; Basantpur: 2 and 5; Bhedua: 3 and 7; Sarengarh: 4 and 6; Mukutmanipur: 8 and 9.
B, *microliths*. Dharampur: 1; Kajolkura: 2-4, 8-10 and 15; Ghugi-Jan: 5; Tuman: 6; Bhedua: 7; Puruldiha: 11; Chiada: 12 and 13; Mahulbana: 14. See p. 50

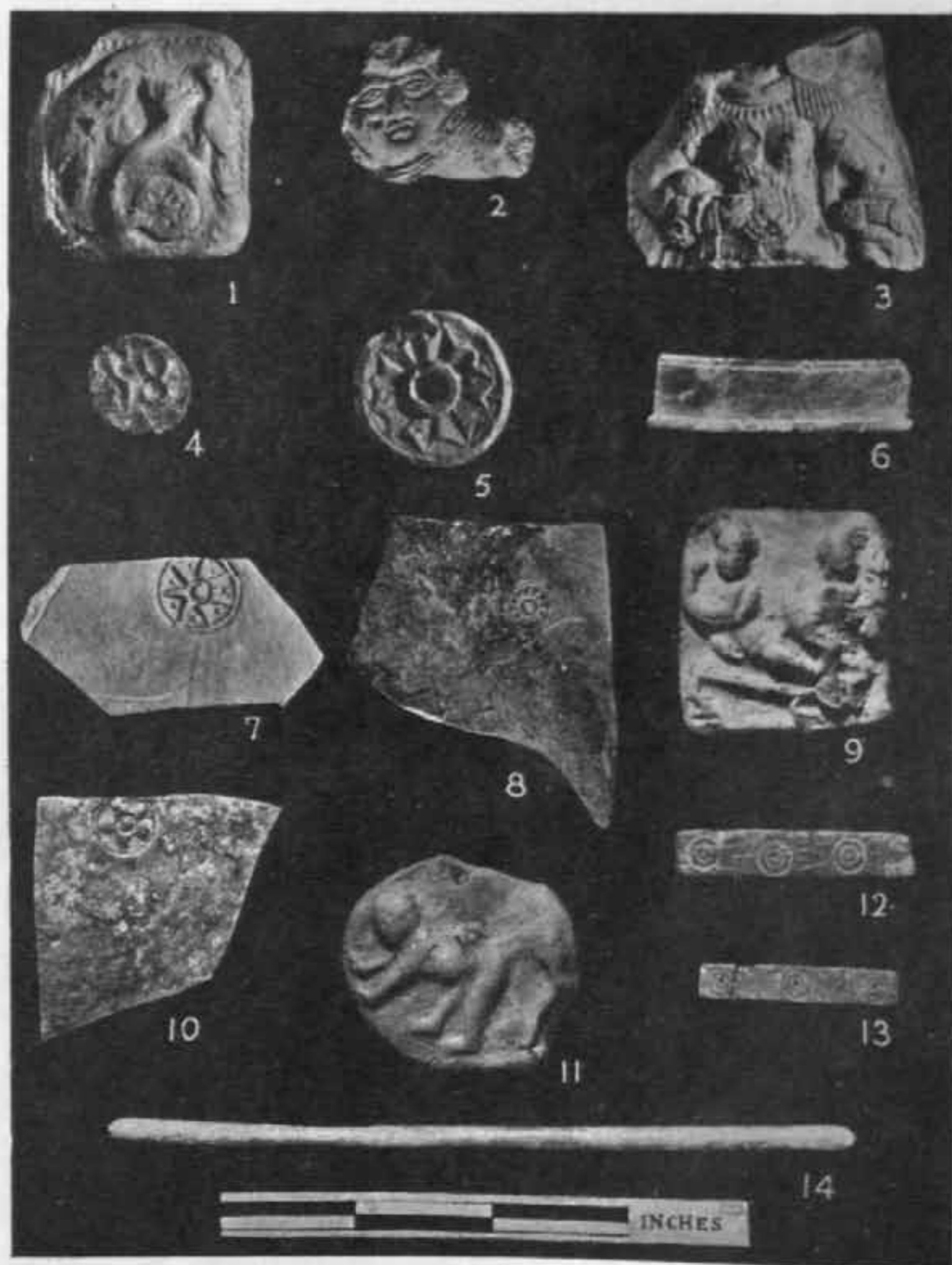


A



B

Chandraketugarh: A. *walls of the vestibule;* B. *offsets in the temple. (Scales of feet.)* *See p. 51*



Chandraketugarh: miscellaneous antiquities. 1. terracotta plaque with a pair of parrots; 2 and 3, terracotta human figurines; 4, terracotta disc with Brahmi letters; 5. terracotta ear-stud; 6. fragmentary steatite casket; 7, 8 and 10. stamped pottery; 9 and 11. terracotta mithuna plaques; 12 and 13. ivory disc; 14. ivory cosmetic-stick.. See pp. 51-52

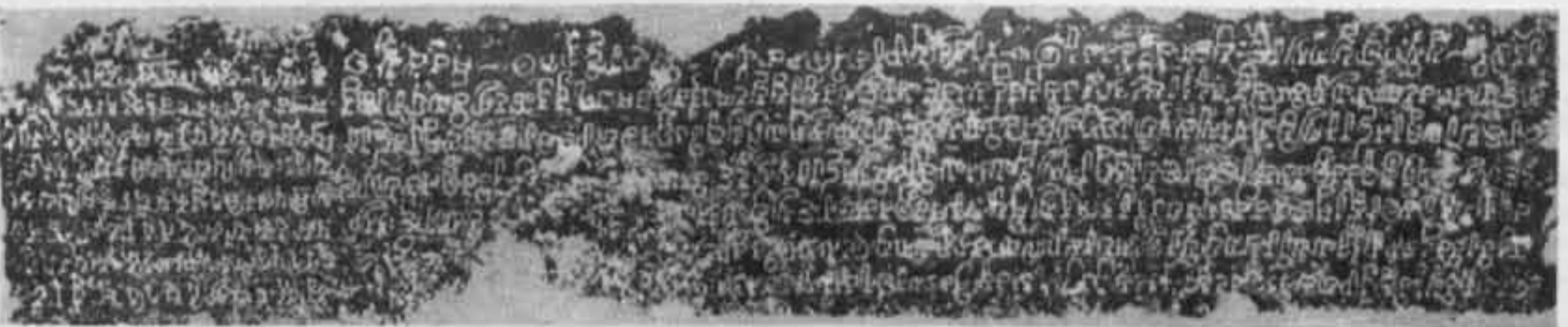


A



B

Chandraketugarh : A, Rouletted Ware; B, pottery with stamped designs. (½.) *See p. 51*



A



B



C

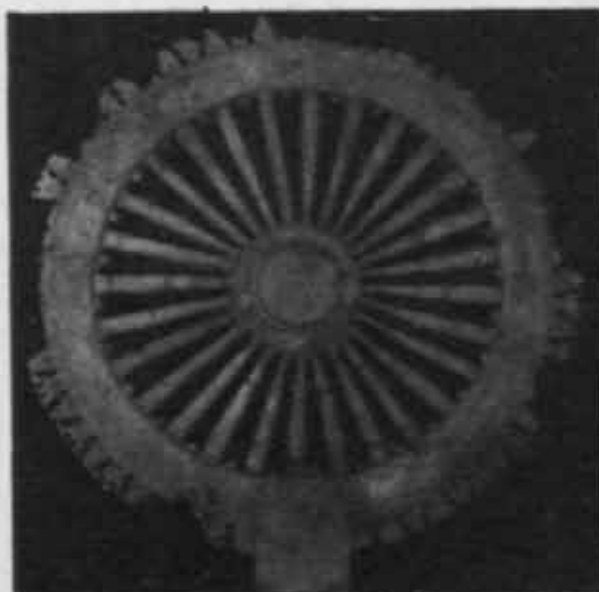


D

A. *Alampur : inscription of Vijayaditya Satyasraya* (1/8). B. *Pitaiband : coins of Kramaditya* (1/1). C. *Cambay : inscription of Said-al-Bammi* (1/8). D. *Kharid : inscription of Nasiru'd-Din Nusrat Shah* (1/8). *See pp. 54, 62, 63 and 65*



A



C



B

A *and* B. *Uppugunduru: statue of Buddha (ht. 4 ft.) and sculptured panel (l. 2 ft. 5 in.).* C. *Lingarajupalem: stone dharma chakra (ht. 4 ft. 3 in.).* *See p. 67*



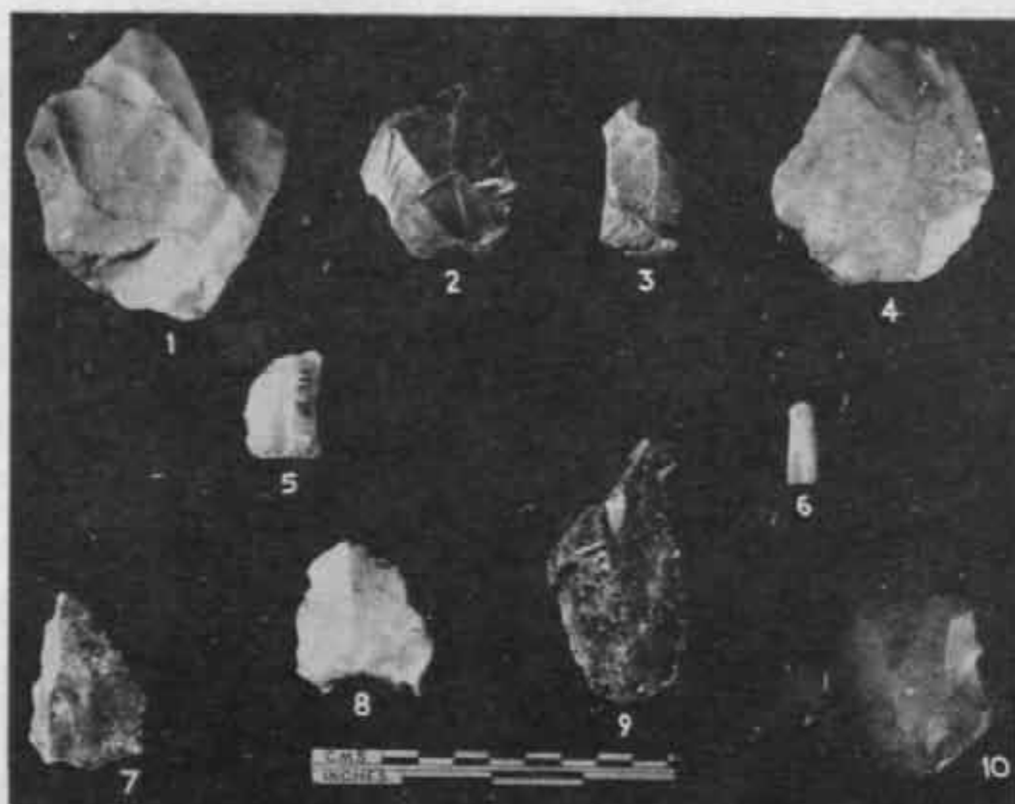
A



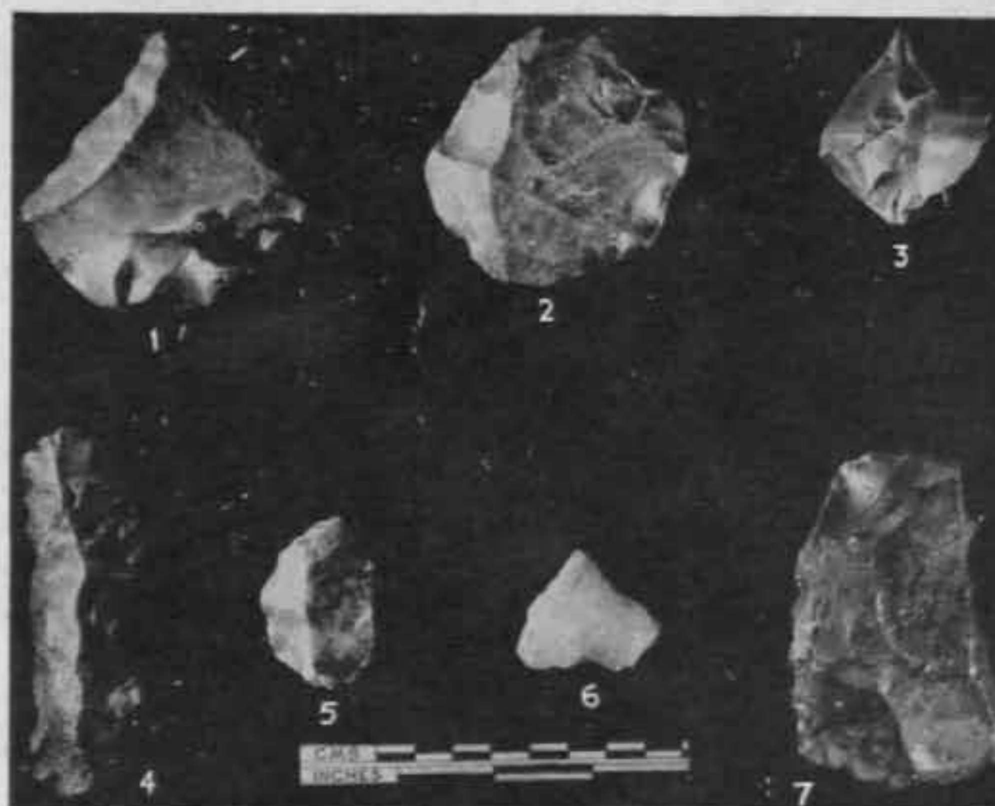


B C

A and B, Sultan Ghari : sculptured panel (l. 2 ft. 9 in.) and upright of a railing (ht. 5 ft. 9 in.). C. Barehat: terracotta figure. *See pp. 67 and 69*



A



B

Tools of Series II. A. *Gauriya : 1; Keolari : 2, 6, 7, 9 and 10; Saliwada : 3 and 4; Khajarwara; 5 and 8;* B. *Doli : 1, 2, 4, 5 and 7; Birhaula-khera: 3 and 6.* *See p. 69*



A



B



C



D

A, *Rehli* : *stone slab with nava-grahas.* B *and* C. *Bhandak* : *stone images of Ambika and Kubera (hts. 4 ft. and 2 ft. 9 in.).*
D. *Astalbohr: stone statue of Parsvanatha (ht. 3 ft. 10 in.)* *See pp. 70, 72 and 74*



B



A

Astalbohr : A and B. *Jaina deities (hts. 1 ft. 5 in. and 1 ft. 4 in.).* *See p. 74*



A



B

Kot-ki-Deoli : A *and* B, *stone panels with dancing figures (hts. 1 ft. 3½ in. and 1 ft. 5 in.).* *See p. 74*



A



B

Allahabad Museum : A, *stone cross-bar, Kausambi (l. 10 in.);* B, *terracotta plaque. Ahichchhatra.* *See p. 76*



A



B



C

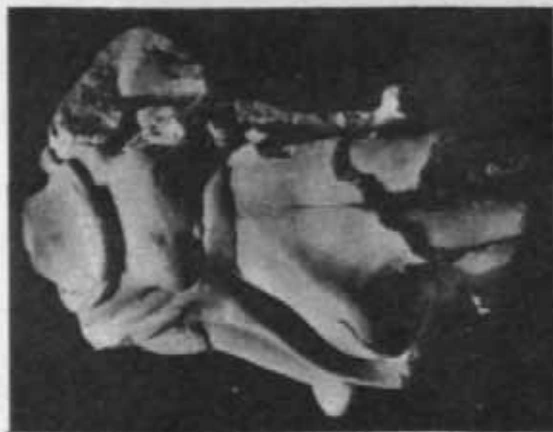
A *and* B. *Amber Museum: stone sculptures, Abaneri (hts. 1 ft. ¾ in. and 1 ft. 3 in.);* C. *Baroda Museum: Indrani (ht. 2 ft. 1¼ in.).* *See p. 76*



C



B



A



F



E



D

Asutosh Museum, Calcutta : terracottas. A, *headless female figure (ht. 3¼ in.),* B, *prince holding a parrot (ht. 5½ in.).* C, *musician with an elephant (ht. 3¼ in.);* D, *Kubera on nara-vahana (ht. 2¾ in.),* and E, *elephant-god with woman (ht. 4 in.), Chandraketugarh;* F, *yakshi, Boral (ht. 5¼ in.).* *See pp. 77-78*



A



B

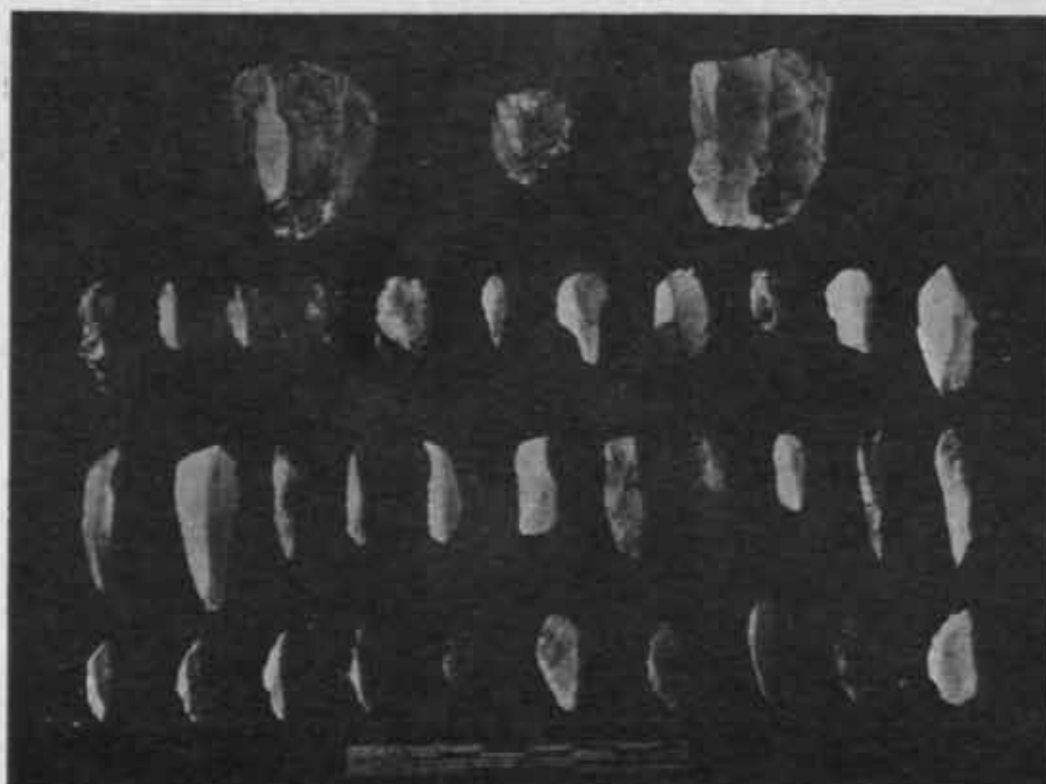


C

Asutosh Museum, Calcutta : A. *stone Vishnu-Dattatreya. Kaikala (ht. 2 ft. 9 in.);* B. *stone Vishnu-Lokesvara. Sardanga (ht. 5 ft. 4 in.);* C. *bronze Parvati, Baroda (ht. 5¼ in.).* *See p. 78*



A



B

Indian Museum, Calcutta : A, stone celts, Paklihal; B, microliths, Kondapur. *See p. 78*

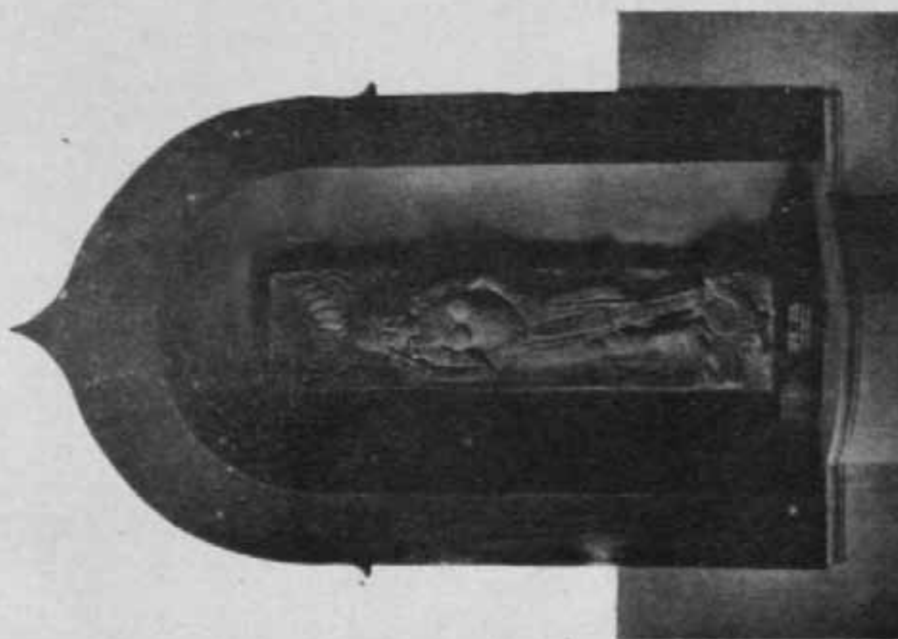


A



B

Indian Museum Calcutta : A, *stone Chandi, Bogra (ht. 1 ft. 4 in.);* B, *Nepalese banner (2 ft. 4 in.×1 ft. 10 in.).*
See pp. 78-79

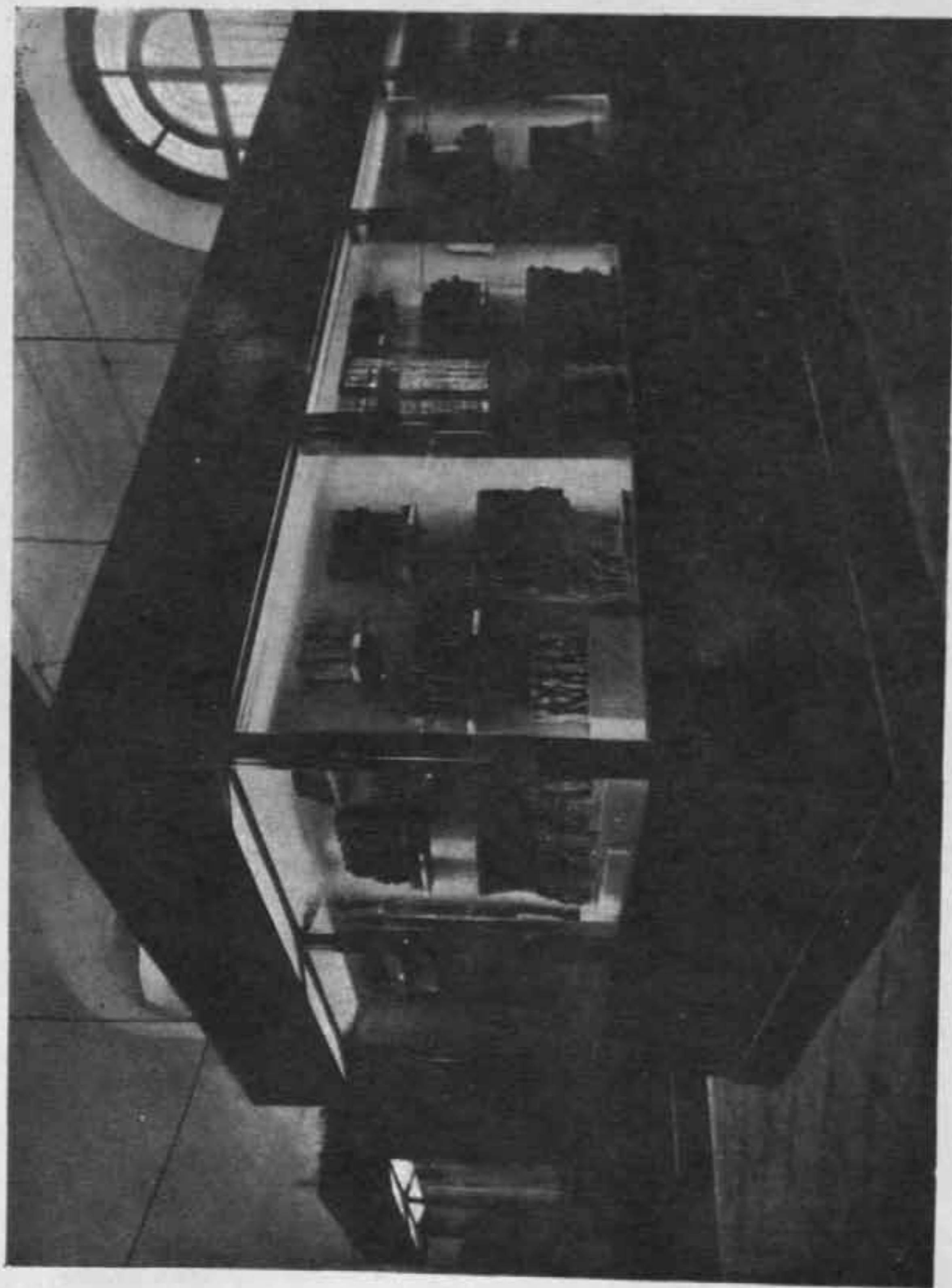


A



B

Indian Museum, Calcutta : A, display of Bharhut sculpture; B display of Soan valley palaeoliths. *See p. 79*



Indian Museum. Calcutta : remodelled Gandhara Gallery. *See p. 79*

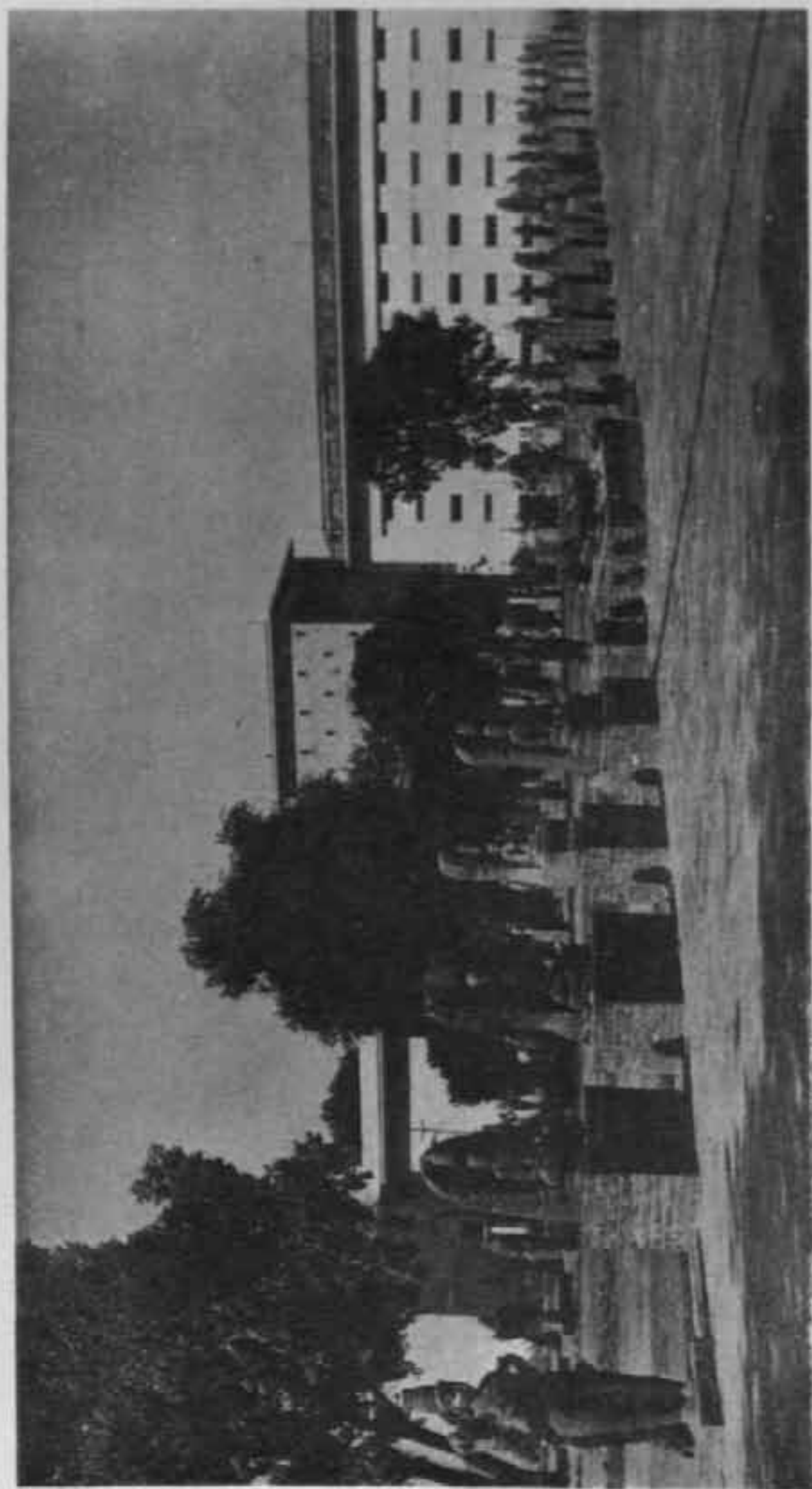


A



B

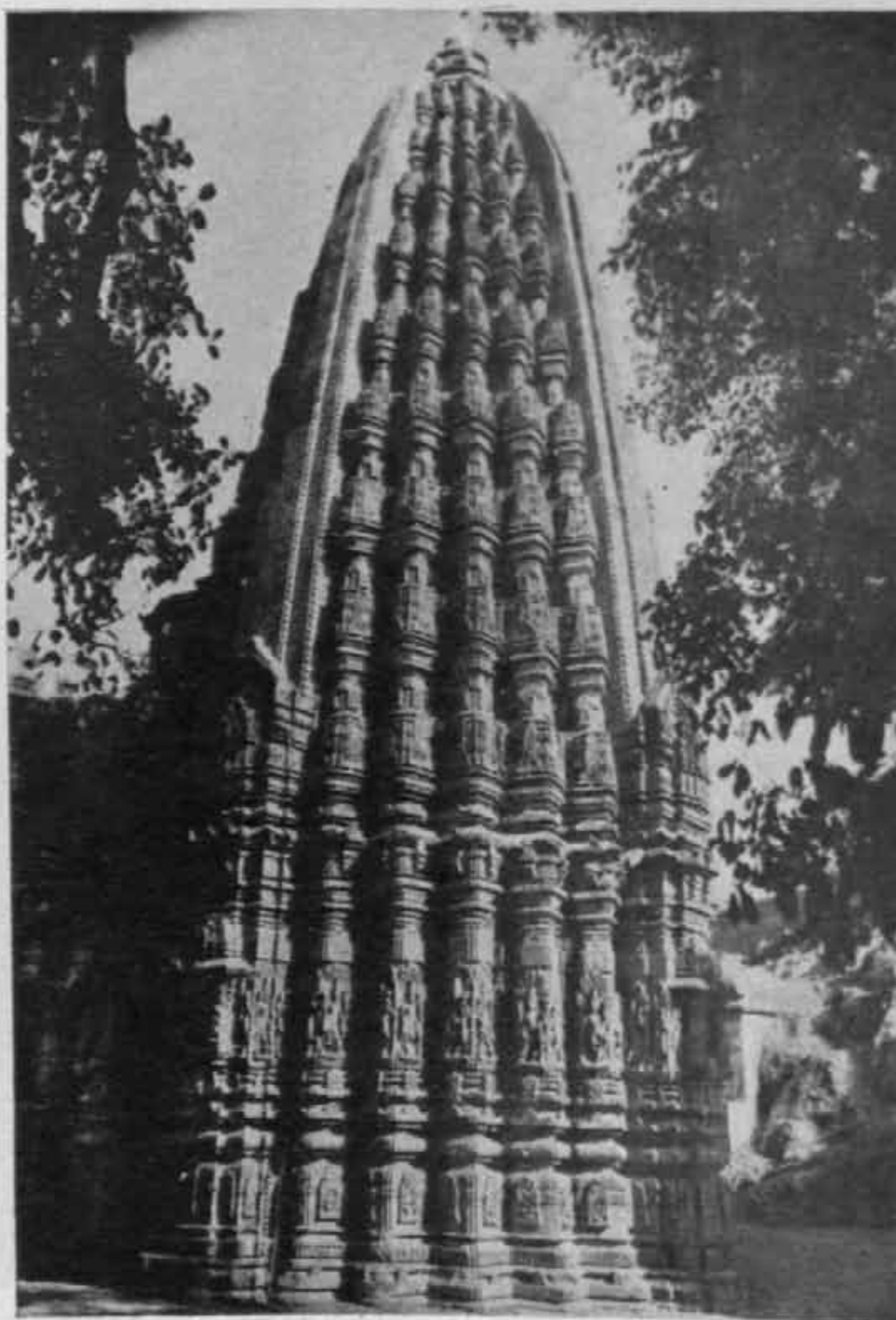
National Museum, New Delhi : stone sculptures. A, *Somaskanda, and* B, *Siva as teacher, south India (hts. 3 ft. 9 in. and 2 ft. 7¾ in.).* *See p. 81*



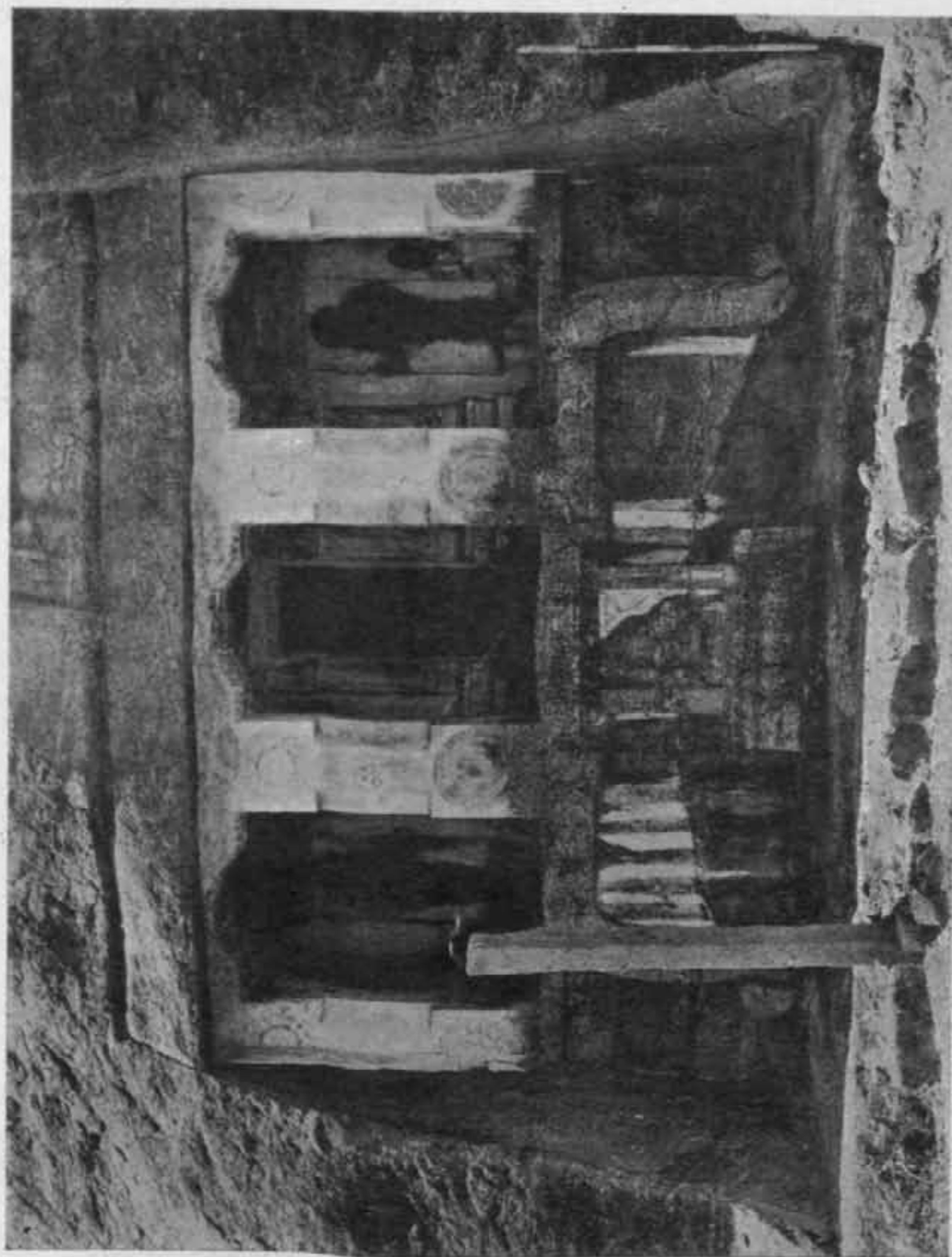
National Museum, New Delhi : open-air exhibition. See p. 81



Kadwaha : Siva temple. *See p. 83*



Nemawar : Siddhesvara temple. *See p. 83*



Anamalai : Ladan-koil cave-temple. *See p.83*



A



B

Advi-Somanapalli: cave-temples. *See p. 84*



A



B

Ratnagiri: Monastery 1, before and after repairs. *See p. 89*



A



B

Ratnagiri: Monastery 1, cell 3, west wall, before and after repairs *See p. 90*



A

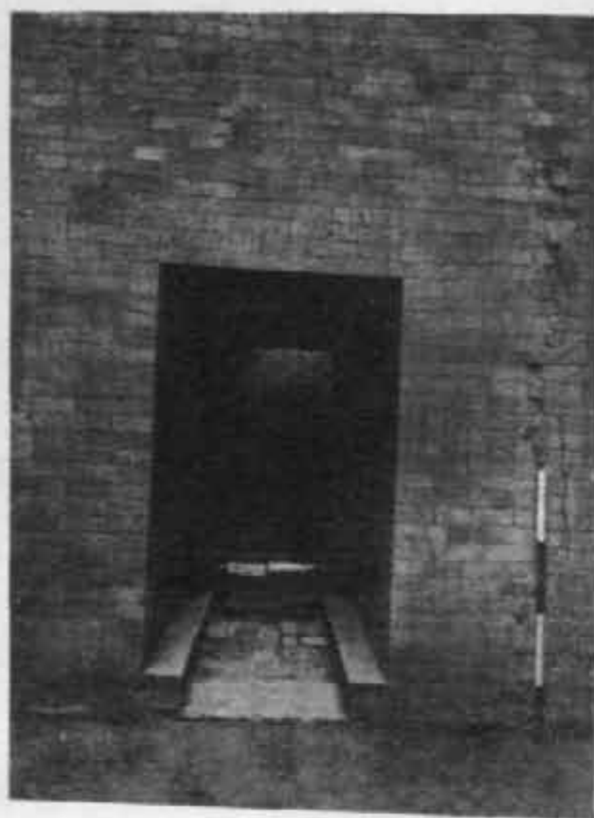


B

Ratnagiri : Monastery 1. front porch. back wall. before and after repairs. *See p. 90*

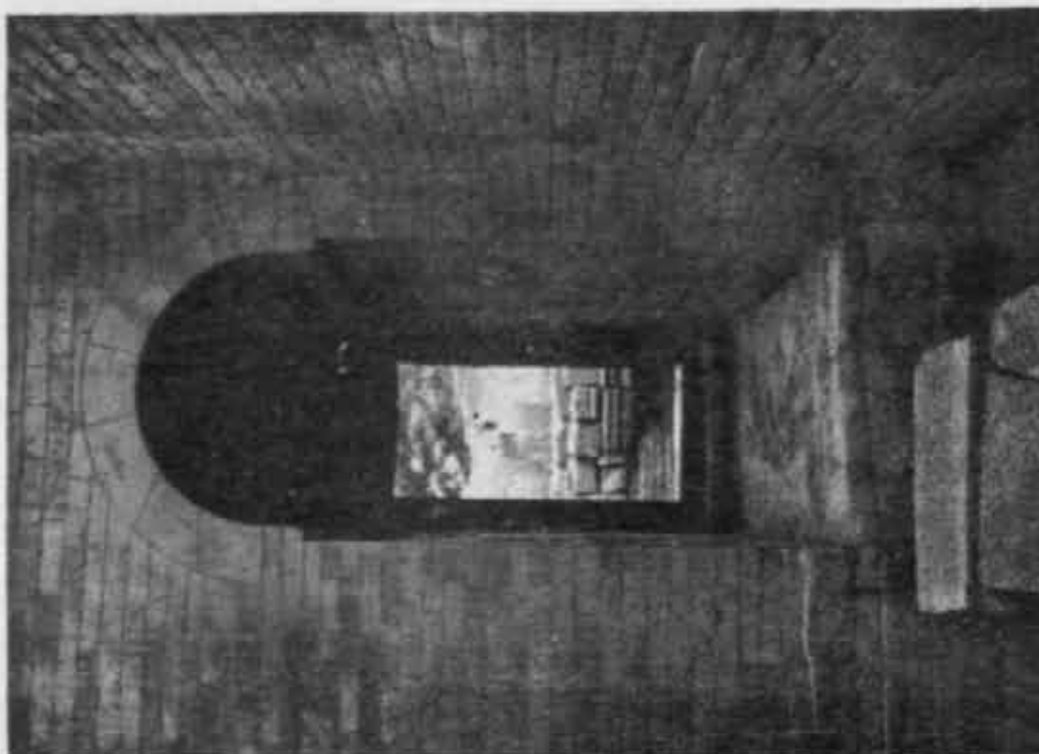


A



B

Ratnagiri : Monastery 1, front porch, before and after repairs. *See p. 90*



B



A

Ratnagiri : Monastery 1, cell 11, arched passage, before and after repairs. *See p. 90*



A



B

Rampurwa: fragments of Asokan pillar, before and after clearance. *See p. 92*



A



B

Bhumara : Siva temple, before and after clearance. *See p 93*



A



B

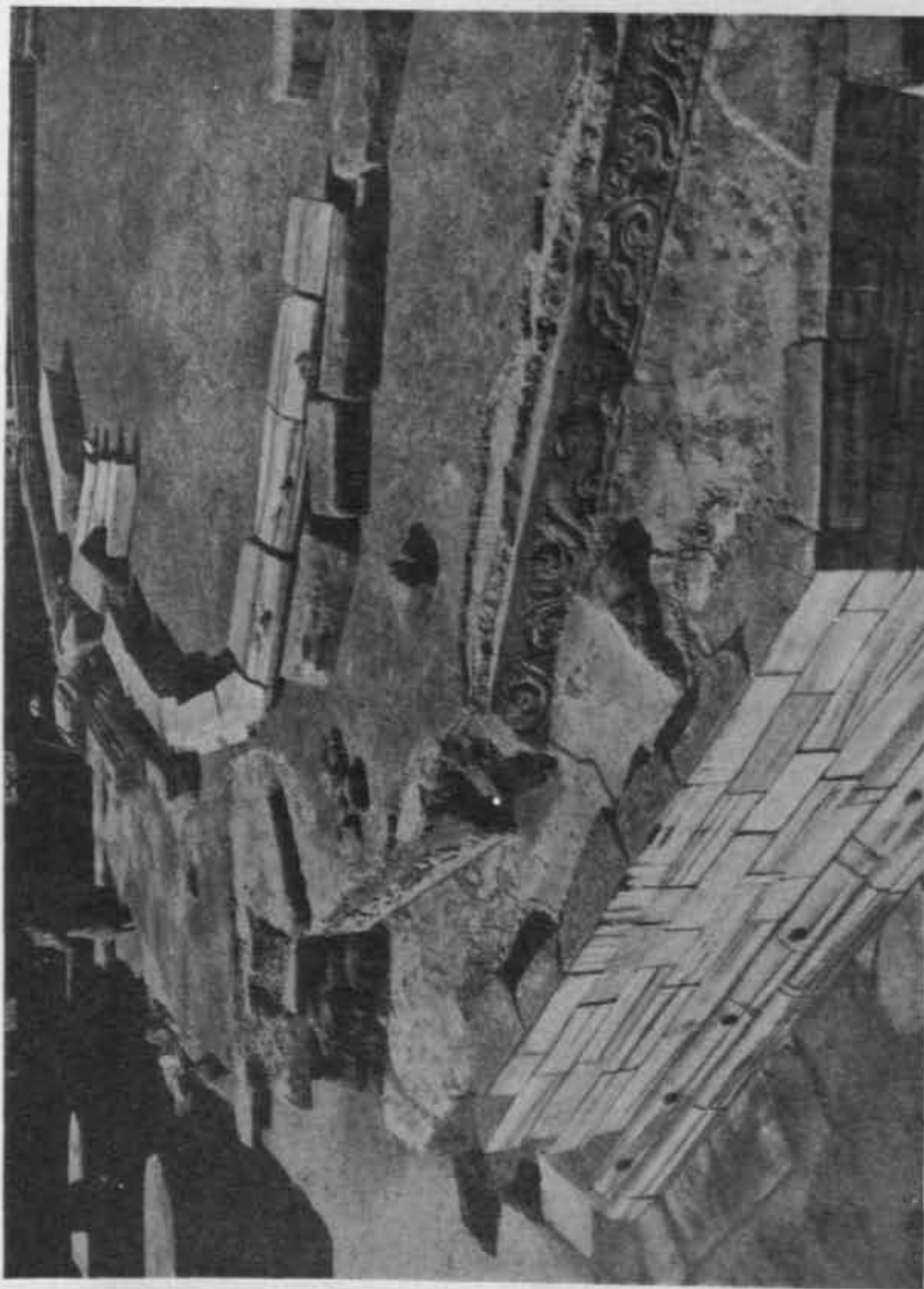
Nachna : Parvati temple, before and after clearance. *See p. 93*





A B

Delhi : Hauz-Khas, eastern [illegible] and-wall, before and during repairs. *See p. 97*



Delhi : Sultan-Ghari, during repairs. See p. 98



A



B

New Delhi : Kotla Firoz Shah, structures in quadrangle, before and after repairs. See p. 98



A

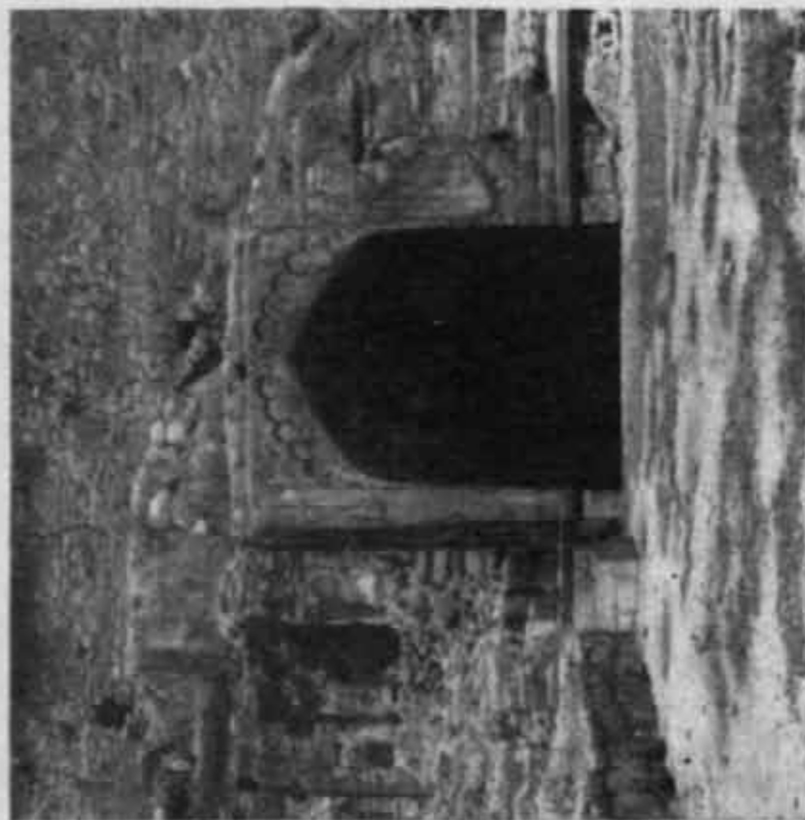


B

Garh : Naugaza temple, before and during clearance. *See p. 100*

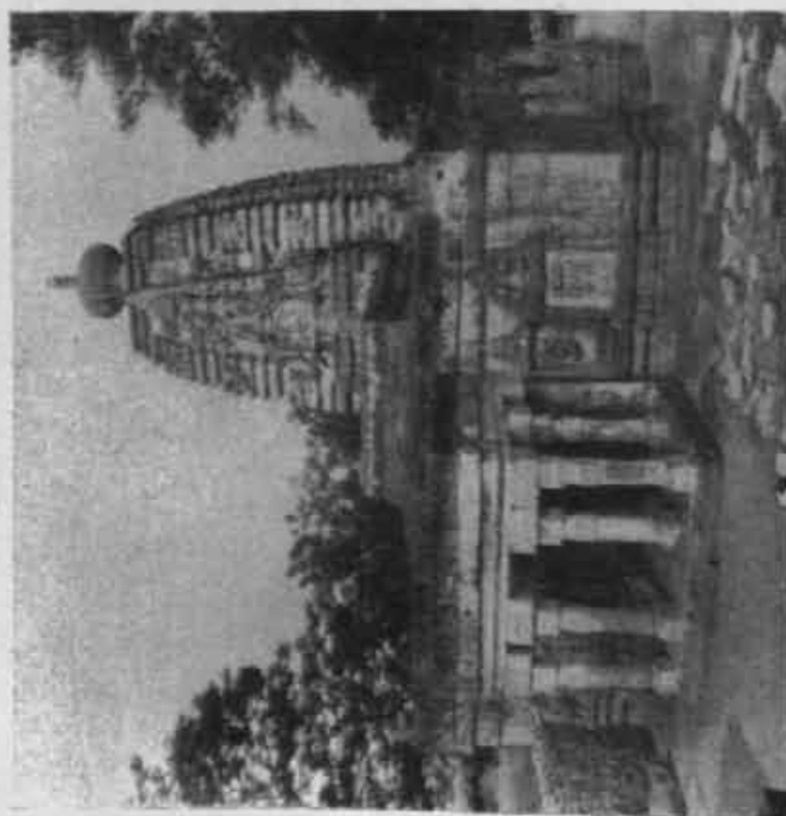


A



B

Golconda : fort, entrance to Taramati mosque, before and after clearance. *See p. 102*



A



B

Alampur : Svarga-Brahma temple, before and after clearance. *See p. 108*



A

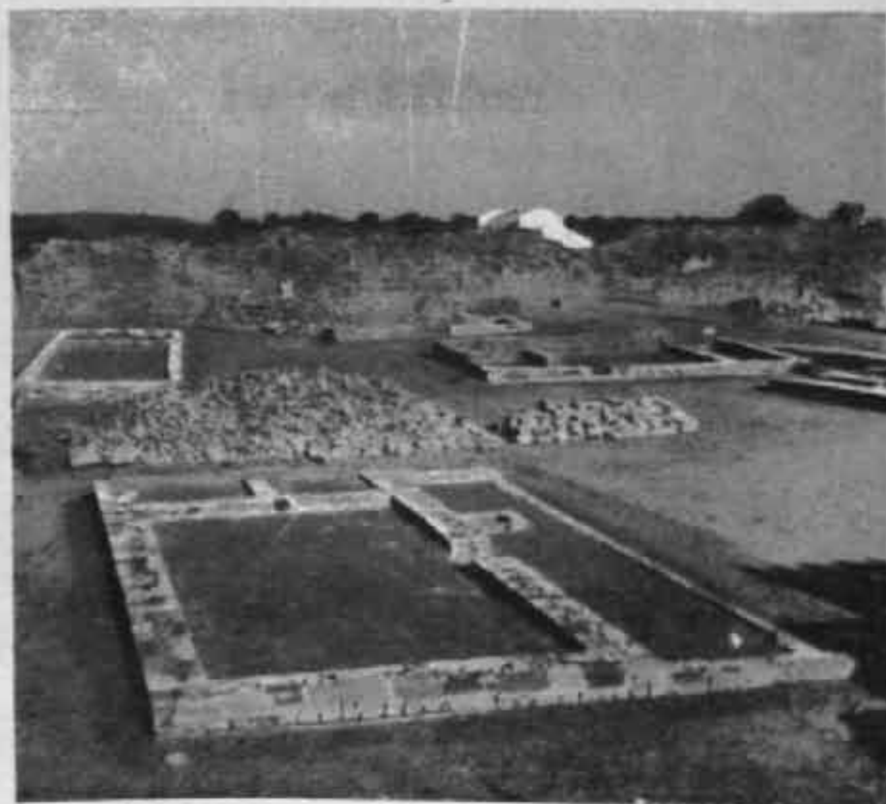


B

Alampur : Papanasi group of temples, before and after clearance. *See p. 108*



A



B

Bhandak : fort, interior, before and after clearance. *See p. 104*



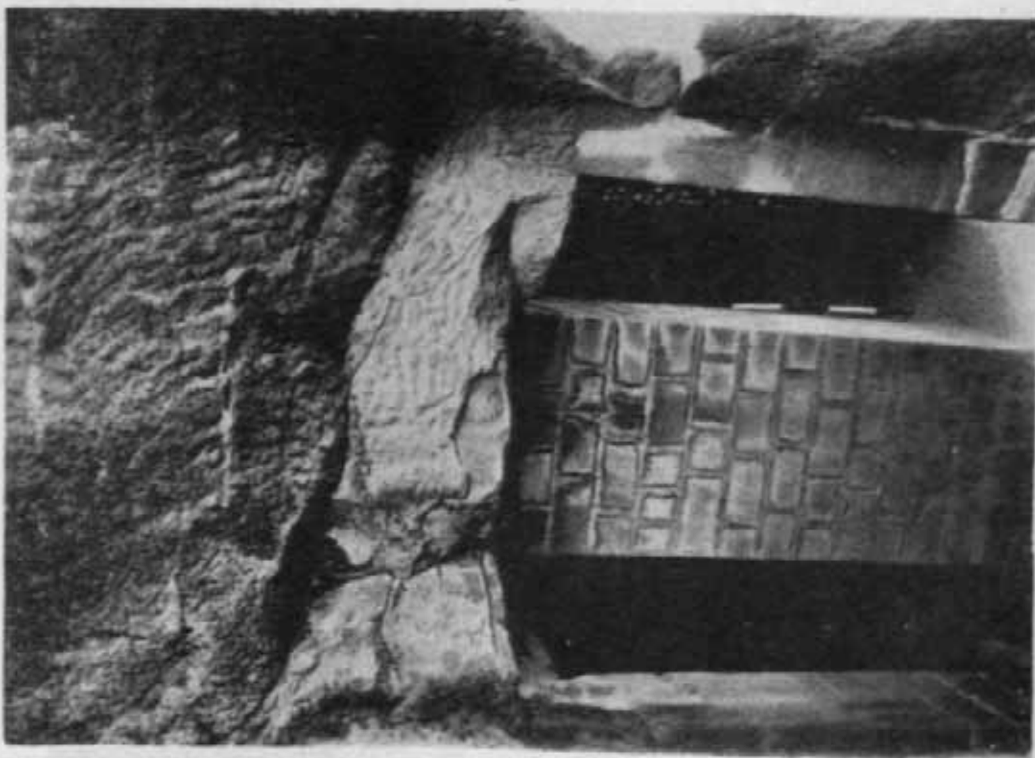


A B

Ajanta : Cave 16, pillars in verandah, during and after repairs. *See p. 108*



B



A

Ajanta: Cave 16, front porch, before and after repairs. *See p. 108*

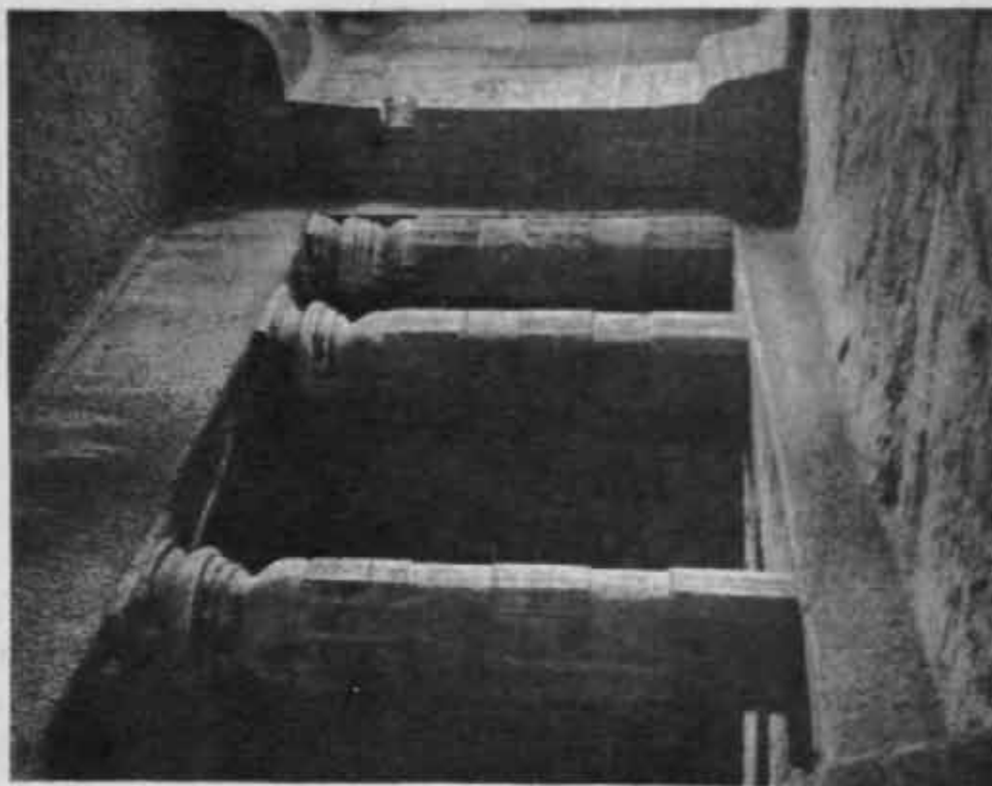


A

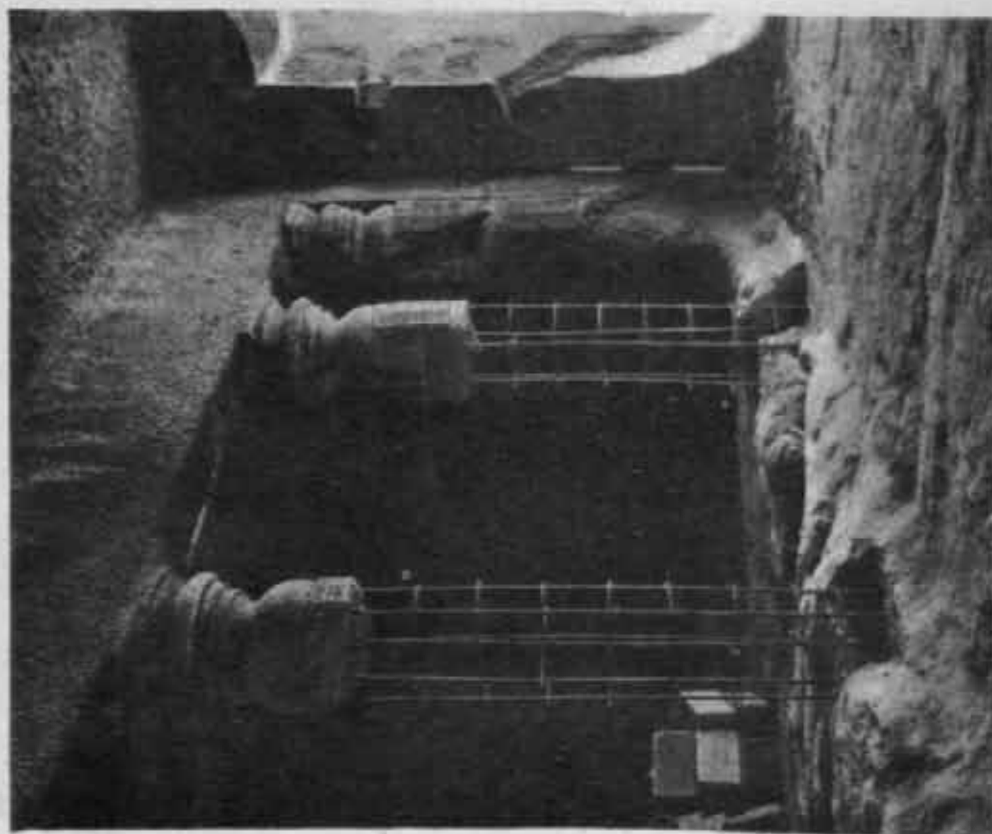


B

Ajanta : Cave 26, sculpture, during and after repairs. *See p. 108*



B



A

Aurangabad: Cave 3, interior, right corridor, during and after repairs. *See p. 103*

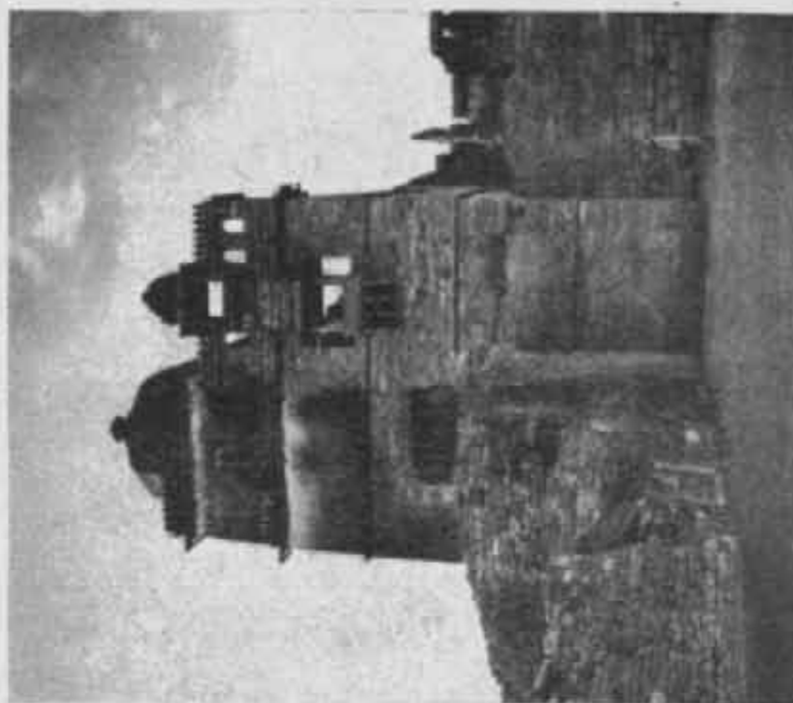


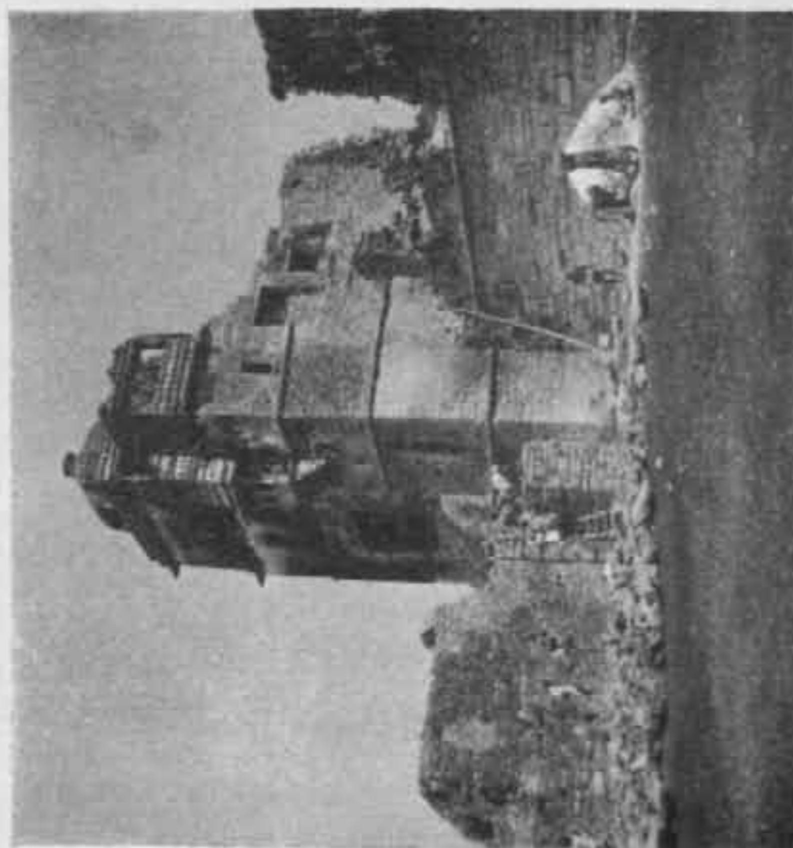
A



B

Dholka : Malav tank, central pavilion, before and after repairs. *See p. 111*





A B

Chitorgarh : Zanana-mahal, during and after repairs. *See p. 113*



A



B

Chitorgarh : Allah Kabra's house, before and after repairs. *See p. 113*

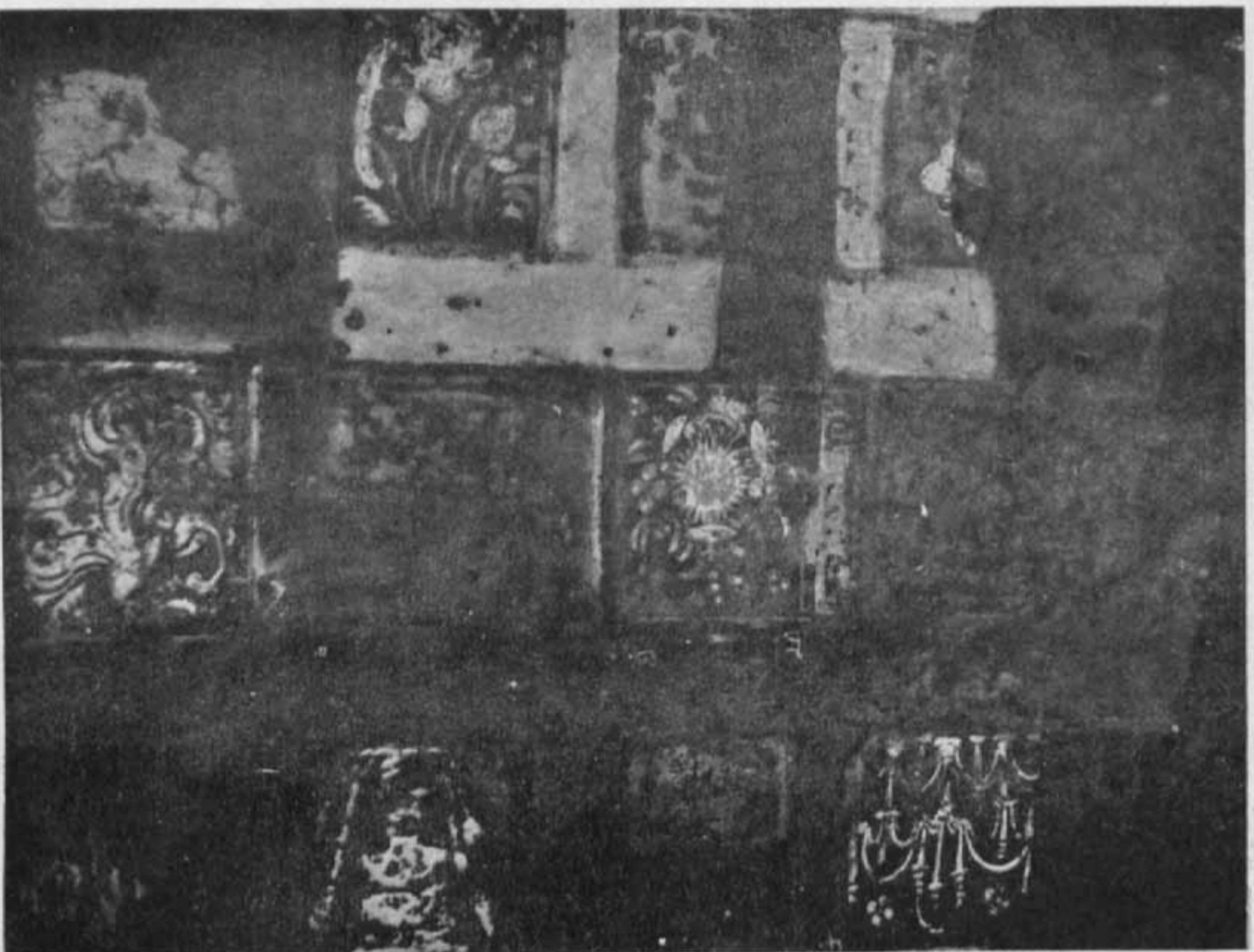


A



B

Chitorgarh : Allah Kabra's house, before and after repairs. *See p. 113*



Bagh : Cave 2, ceiling painting, after partial chemical treatment. See p. 117



Ajanta : Cave 17, painting, after partial chemical treatment. *See p. 118*



Srirangapatna: Darya-Daulat-Bagh, painted canvas, after chemical tretmaent. *See p. 118*



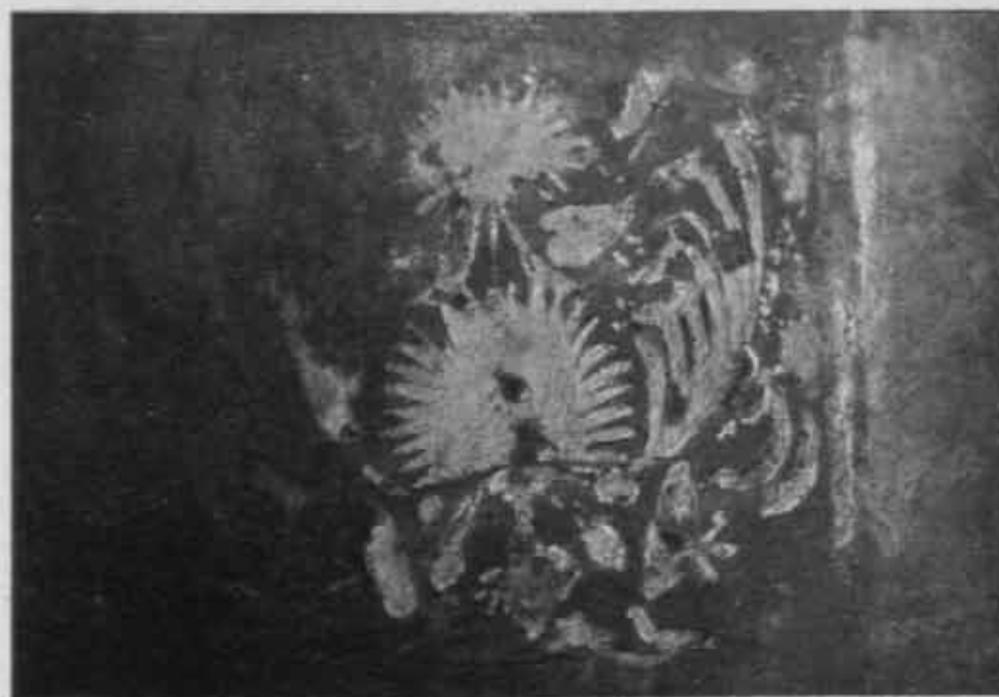


A B

Talbahat : Narasimha temple, paintings, before and after chemical treatment. *See p. 120*

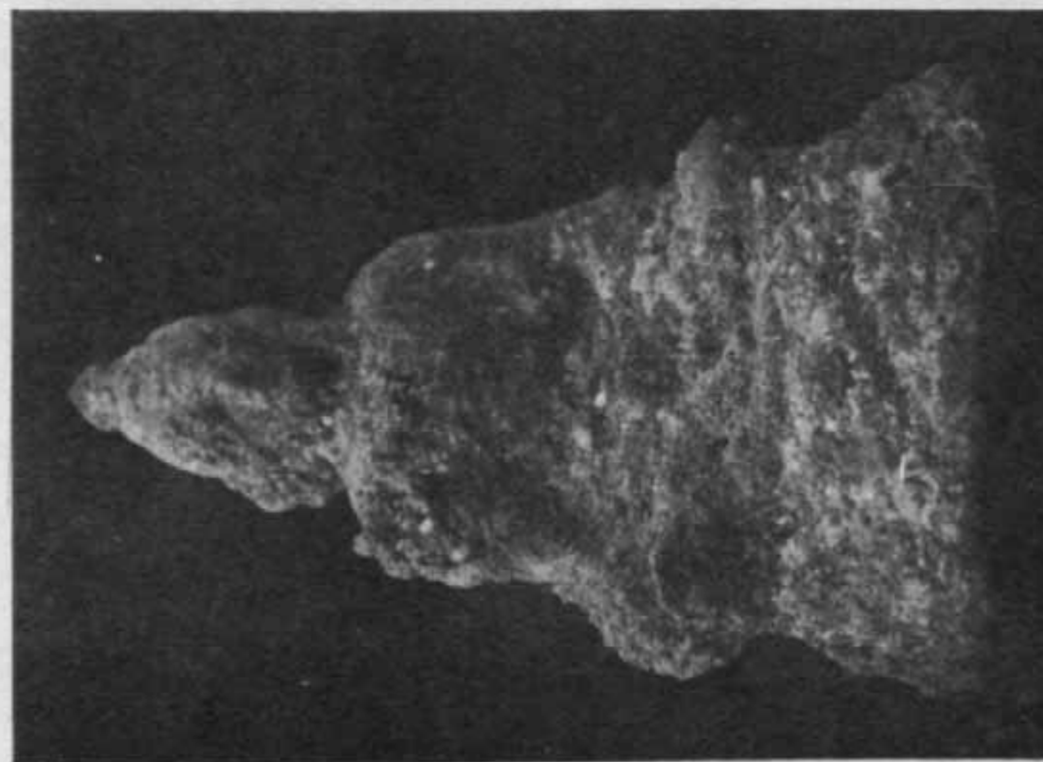


B



A

Paintings during chemical treatment. A, *Bagh, Cave 2;* B, *Agra, 'Itimadu'd-Daula's tomb.* *See pp. 117 and 119*



A



B

Ratnagiri : bronze Buddha, before and after chemical treatment. *See p. 120*





Ujjain : bronze tortoise, before and after chemical treatment. *See p. 120*